



2005 ARMY MODERNIZATION PLAN



*Call to Duty—the American Soldier
in Service to our Nation for 230 years*





REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-8
700 ARMY PENTAGON
WASHINGTON, DC 20310-0700

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SUBJECT: 2005 Army Modernization Plan

In the past year the Army has been fully engaged in prosecuting the global war on terrorism. Our Army has been simultaneously at war while transforming itself. Throughout this process the Army remains committed to provide the best possible sustained land power for our Joint Force. This commitment has been evident in the superb performance of our Soldiers in Operation Iraqi Freedom and Operation Enduring Freedom.

The annual *Army Modernization Plan* provides a report on the Army's efforts to support our Soldiers and maintain current readiness, while developing and fielding improved capabilities for tomorrow. The *2005 Modernization Plan* updates this course to take into account the urgent demands of today's missions and opportunities for applying significant technological improvements. It describes the flexible modernization and investment strategies that place a priority on providing the best capabilities to the Army today, while also supporting a sustained transformation process.

Congress and the Department of Defense have generously provided the resources for today's Army and for tomorrow's improved force. The Presidential Budget for Fiscal Year 2006 demonstrates continued support for this essential path of sustaining our Soldiers at war and investing in the Army's future readiness. These efforts will be imperative for our success.

A handwritten signature in dark ink, reading "D. F. Melcher", is positioned above the printed name.

DAVID F. MELCHER
Lieutenant General, U.S. Army
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2005 ARMY MODERNIZATION PLAN

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2005 ARMY MODERNIZATION PLAN

PURPOSE

The *2005 Army Modernization Plan* describes how Army efforts are supporting transformation by retaining the best of current capabilities and developing new and improved ones using a comprehensive and balanced approach. This document describes the modernization and investment strategies adopted to enhance the effectiveness of the Current Force while pursuing critical capabilities for the Future Force. Along with the *Army Science and Technology Master Plan*, it provides the rationale and justification for the research, development, and acquisition (RDA) portion of the Army's program in support of Fiscal Year (FY) 2006 President's Budget (PB06). This plan conforms to Army leadership guidance, which is reflected separately in the *Army Strategic Planning Guidance*, the *Army Campaign Plan*, and the *2004 Army Transformation Roadmap*. Specifically, the *2005 Army Modernization Plan*:

- Communicates FY06 budget priorities, key accomplishments and remaining challenges, and shapes conditions for Army budget planning for future years.
- Describes the Army's transformation efforts, the progress to date, and how the Army's overall modernization strategy supports both the readiness of the Current Force and transformation initiatives as it continually evolves toward the Future Force.
- Describes the current and future strategic environment and the overall strategy and

warfighting concepts the Army is expected to use in that environment.

- Explains how Army readiness and transformation initiatives are supported by modernization efforts across the entire breadth of doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF).
- Describes the Army's modernization and investment strategies and complements the Army's portion of the FY06 budget submission, which provides schedule and cost information.
- Provides information on selected programs that are critical to the Army's efforts to enhance capabilities of the Current Force and continually transform to improved Future Force capabilities.

The *Army Modernization Plan* does not offer:

- Specific details on all RDA programs. This information is provided in other documents, to include the *United States Army Weapon Systems 2005*.
- Specific commitment for budget figures beyond FY06. Any information reflected for these years represents an Army planning estimate and is subject to change.
- Modernization schedules for specific units that are published and disseminated separately.

2005 ARMY MODERNIZATION PLAN

OVERVIEW AND EXECUTIVE SUMMARY

Our Army at War and Transforming

The Army, like the nation itself, remains fully engaged in an ongoing war that promises to be long in duration and with the highest stakes for today's and tomorrow's generations of Americans. While participating fully as a member of the Joint Force in the global war on terrorism, the Army is carrying out the most demanding role in this conflict and has had an average of 300,000 Soldiers deployed and forward-stationed in 120 countries. From approximately 125,000 Army Soldiers in Iraq and Afghanistan, who are bearing the brunt of this war in combat, to the tens of thousands of Soldiers in other critical areas of the world, and to the remainder of the Army at home providing the deployable base for future expeditionary missions and for vital homeland security tasks, the Army as a whole is committed to succeeding in all missions assigned.

Being ready to meet today's security requirements is the Army's highest priority and one that cannot and will not be compromised. Concurrent with this imperative, the Army has embarked on a dynamic process of transformation, building on the lessons learned today and adapting for future needs. The requirements for prosecuting war today and securing readiness tomorrow are formidable and costly, but the Army remains determined to do what is necessary to fulfill its responsibilities to the nation.

All 18 of the Army's divisions, a large number of the remaining conventional forces, and the majority of our invaluable Special Operations Forces (SOF) have seen operational action

in the recent past. In 2004, the Army and its sister Services also completed the largest rotation of forces since World War II. This effort has involved the full participation of both Active and Reserve Components (AC and RC), as over 240,000 RC Soldiers have served as an integral part of these operations and over 150,000 are currently mobilized and performing a diverse range of missions worldwide.

Today's Army is the foundation of our war-fighting readiness and the instrument for fulfilling missions assigned by the President and Secretary of Defense in support of regional combatant commanders. The Soldier remains the centerpiece of the Army and is indispensable to the Joint Force. Today's Soldier is adaptive and confident and is infused with values and culture summarized in the term "Warrior Ethos." This ethos is highlighted by the commitment to mission first, refusal to accept defeat, and the firm belief that military service is much more than just a job. The Soldier deployed today is the Army's greatest asset and is the focus of our efforts, now and into the future, as the Army continues with its dynamic adaptation and transformation.

Recent operations in Iraq and Afghanistan have vividly highlighted the importance of the individual Soldier and the effectiveness of Army units in conducting sustained land warfare for the Joint Force. Protecting these Soldiers and improving their overall capabilities is an enduring mandate for the Army. To achieve this, the Army is maintaining a careful balance between providing operational readiness today and rapidly improving capabilities

for the future. This endeavor includes building upon the significant investments in modernizing the force that have already been made, incorporating new capabilities as rapidly as possible, and implementing major restructuring initiatives to apply current lessons and anticipate future requirements.

To facilitate this major undertaking, Army leadership last year established an internal review of a wide variety of “focus areas” to identify the status of ongoing efforts and the adjustments needed to improve support to the Joint Force and advance effective joint interdependency. The results of this introspective examination, combined with the results of the Army’s participation in the Joint Capabilities Integration and Development System (JCIDS), have resulted in significant policy and budgetary decisions that are reflected in the Army’s component of the PB06. Overall, these decisions are intended to fulfill the Army’s strategic objectives of providing (1) trained and equipped Soldiers and developed leaders, and (2) relevant and ready land power to the combatant commander as part of the Joint Force. The ultimate objective of all these efforts is to produce a campaign-quality Army with joint and expeditionary capabilities, which will remain a vital and indispensable member of the Joint Force.

Accomplishments and Priorities

In PB06, the Army emphasizes its priority of sustaining our global commitments and maintaining the current readiness of the force. Concurrently, the Army continues to pursue an ambitious and essential transformation effort to produce a ready and relevant force that is more capable and modular and thus better prepared to function as a member of the Joint Force. Due to considerable support from Congress and the Department of

Defense (DOD), the Army has already established a solid foundation and made significant progress in the past years. Additional major efforts, however, are underway that will require increased levels of funding and support to ensure success. Since the *2004 Army Modernization Plan* and in conjunction with the proposed funding contained in PB06, the Army has:

- Placed the highest priority on sustaining our global commitments and particularly on supporting forces deployed in the global war on terrorism—especially those in Iraq and Afghanistan—and rapidly applied lessons learned from these operations to adjust Army plans and initiatives. Our second priority remained the focus on transforming the Army.
- Managed intensively every aspect of equipping Soldiers for operational tasks to ensure equipment is properly tested, acquired and distributed as rapidly as possible; priority has been to providing the latest in force protection equipment such as improved body armor, up-armored High Mobility Multipurpose Wheeled Vehicles (HMMWV) and additional ballistic protection for other vehicles and selected aviation platforms. In 2004, the Army provided Soldiers with a quick-reaction capability (QRC) systems called Warlock, a family of systems designed to counter radio-controlled improvised explosive devices (IEDs). Warlock is currently protecting Soldiers from IEDs in Iraq and Afghanistan. The Rapid Fielding Initiative (RFI) was another means used to accelerate the fielding of important Soldier systems with the latest state-of-the art enhancements, as was the Rapid Equipping Force (REF) process, which accelerated items critical for immediate operational requirements.

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- Established an Armoring Task Force to identify and anticipate requirements for Army tactical vehicles and develop an integrated strategy, determine ways to accelerate production and installation, and determine funding required to procure armored solutions. The Army's objective is to ensure that all tactical wheeled vehicles in Iraq and Afghanistan have some level of armor protection by June 2005. Initial priority to light tactical vehicles (HMMWVs) has shifted to medium and heavy tactical vehicles. Accelerated domestic production and installation and in-theater application of armored protection are being complemented by the work of the Army-led Joint Improvised Explosive Device (IED) Defeat Task Force, as well as the introduction of new tactics, techniques and procedures to increase the protection and survival of our forces.
 - Maintained and expanded the significant ongoing efforts for "setting the force" that improves the readiness for Army units preparing for deployment and restores readiness for those units returning from operations. This critical initiative was enabled by the indispensable aid of supplemental appropriations that are serving as the essential bridge between past and future annual budgets.
 - Initiated a major restructuring of the entire Army concurrent with ongoing operations, building upon the initial temporary increase of 30,000 in Army end strength, and enabled by supplemental appropriations. This comprehensive effort will produce units more responsive and relevant to the requirements of regional combatant commanders and capable of joint interdependency. The core of this initiative is the creation of modular formations, with Brigade Combat Teams (BCTs) as the foundation, that are more self-contained, sustainable and capable force packages. The end result will be an increase in the number and quality of units available to deploy and support operational requirements.
 - Conducted the successful modularization and reorganization of the maneuver brigades of four active duty divisions (3rd Infantry, 10th Mountain, 101st Airborne, and 4th Infantry) and will complete the reorganization of their support brigades and headquarters by the end of 2005. These actions and similar conversions in other active duty divisions will add 10 BCTs to the AC force structure by 2006. The option exists for the creation of an additional five BCTs in 2007 (for a total of 48 BCTs), contingent upon a subsequent decision. Modularization will also apply to all Army National Guard (ARNG) brigades beginning in 2005, resulting in the conversion of 34 BCTs by 2010.
 - Completed the successful validation and operational fielding of the 1st Brigade, 25th Infantry Division, as the second Stryker Brigade Combat Team (SBCT); the unit assumed a mission in Iraq that was successfully conducted by the 3rd Brigade, 2nd Infantry Division, the first SBCT to be fielded. Fielding is underway for the third SBCT—the 172nd Infantry Brigade—in Alaska, which will achieve operational availability in 2005. The Army has current plans to deploy a total of six SBCTs by 2008, with one SBCT scheduled for deployment in Europe in 2007. Additionally, in response to increased congressional support and authorization, the Army has initiated planning for the potential fielding and stationing of a seventh SBCT, the details of which are submitted in conjunction with PB06.

- Continued with critical balancing of the AC and RC that will ultimately involve 100,000 positions and will enhance the support for new modular force structure. Restructured approximately 30,000 spaces in high-demand/low-density units, such as civil affairs, to meet the pressing requirements of the combatant commands, relieve stress, and increase capabilities to conduct long-duration stability operations. In addition, restructured about 10,000 spaces between the components to reduce the need for involuntary mobilizations.
- Initiated restructuring initiatives for Army SOF (Special Forces, Rangers, special operations aviation, civil affairs, psychological operations and combat service support) to increase their self-sufficiency and sustainment and allow for greater integration with modular conventional forces.
- Adopted Unit Force Stability and several other important force stabilization initiatives to lessen the effects of the high operational tempo and to ensure a more stable and predictable lifestyle for Soldiers and their families. Related to Soldier and family support, implemented programs such as Deployment Cycle Support, Disabled Soldier Support System, and Rest and Recuperation Leave programs to improve the quality of personnel support to deployed Soldiers and their families.
- Continued with a new approach to aviation restructuring following the PB05 decision to terminate Comanche and devote valuable resources to more critical near-term aviation needs as well as the transformation into a modular, capabilities-based maneuver arm.
- Announced a major restructuring in the Future Combat Systems (FCS) program to

accelerate the spiral application of emerging technologies to existing systems and current units, while continuing with the development of the FCS as the link to the future Army.

Highlights of the FY06 Budget

The *2005 Army Modernization Plan* is submitted in conjunction with the release to Congress of PB06, which supports an Army at war and operationally engaged while also continuing to support significant transformation into a more capable and modular force. Specifically, the Army's portion of the PB06 submission provides funding for the following:

- Maintains essential emphasis on improving the readiness of the Current Force by devoting over \$15 billion in the program to the recapitalization of systems in this force and by supporting efforts to restore full readiness for future missions for units involved in recent operations.
- Programs over \$13 billion toward the modular conversions of 77 BCTs. This funding, in conjunction with the Army's supplemental strategy and the recent DOD commitment to add \$5 billion per year from FY07-11 to support conversion requirements, will permit completion of the Army's modular transformation by FY10.
- Provides \$3.1 billion to complete funding of six SBCTs by 2008 and submits fielding and stationing plans for the potential fielding of a seventh SBCT.
- Accelerates the development and spiraling forward of transformational technologies into Current Force units by restructuring the FCS program and freeing up approximately \$9 billion for this purpose.

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- Leverages joint, Army component, academic, and industry efforts to take advantage of technology to support the warfighter. In this regard, focuses science and technology (S&T) investment of approximately \$10.9 billion over the Future Years Defense Plan (FYDP) in the development of capabilities primarily applicable to the Future Force, though with potential application to Current Force units and systems.

The Army is committed to preserving and improving the capabilities and operational readiness of the Current Force and supporting our Soldiers deployed and engaged in the global war on terrorism. To accomplish this, the Army has begun to institutionalize a fundamental restructuring into more modular formations that will be increasingly responsive and more capable of executing all missions assigned the Joint Force today and in the future. This effort is a fundamental part of the Army's continuing transformation into a more

ready and relevant force. It is also built upon the significant development and application of new technologies, including the increased efforts to spiral these emerging technologies into existing systems as soon as feasible. These overall modernization efforts include an ongoing assessment of the associated risks in order to maintain the correct balance between current and future readiness and requirements.

Due to the considerable support from Congress and DOD in the form of annual and supplemental appropriations, much progress has already been made and more is underway. Continued and increased support and funding will be required for the Army to succeed in both the ongoing global war on terrorism and in the evolution of an improved force capable of meeting the land power needs of the Joint Force. Our nation and our Soldiers demand and deserve our best efforts, and the Army remains firmly committed to accomplishing the tasks we are facing in the days ahead.

2005 ARMY MODERNIZATION PLAN

STRATEGIC FRAMEWORK

Strategic Environment and Posture

The United States is a nation at war and involved in a struggle that involves all elements of national power in a long-term campaign to defeat enemies who threaten our survival and way of life. The strategic environment has changed significantly since the end of the Cold War, and the events of 11 September 2001 dramatically demonstrated that we had entered a new era of conflict with different challenges to overcome. Although traditional challenges will remain, new and unforeseen

ones have emerged that require increased efforts to adapt structures and methods to deal with and overcome them. The current strategic environment now includes the growth of failed and failing states, non-state actors, the danger of states with newly acquired weapons of mass destruction (WMD), and potentially hostile states employing asymmetric means. Most apparently today, the environment is characterized by a serious threat from dangerous anti-United States and anti-Western terrorist groups seeking to target U.S. and allied interests worldwide. All of these factors,

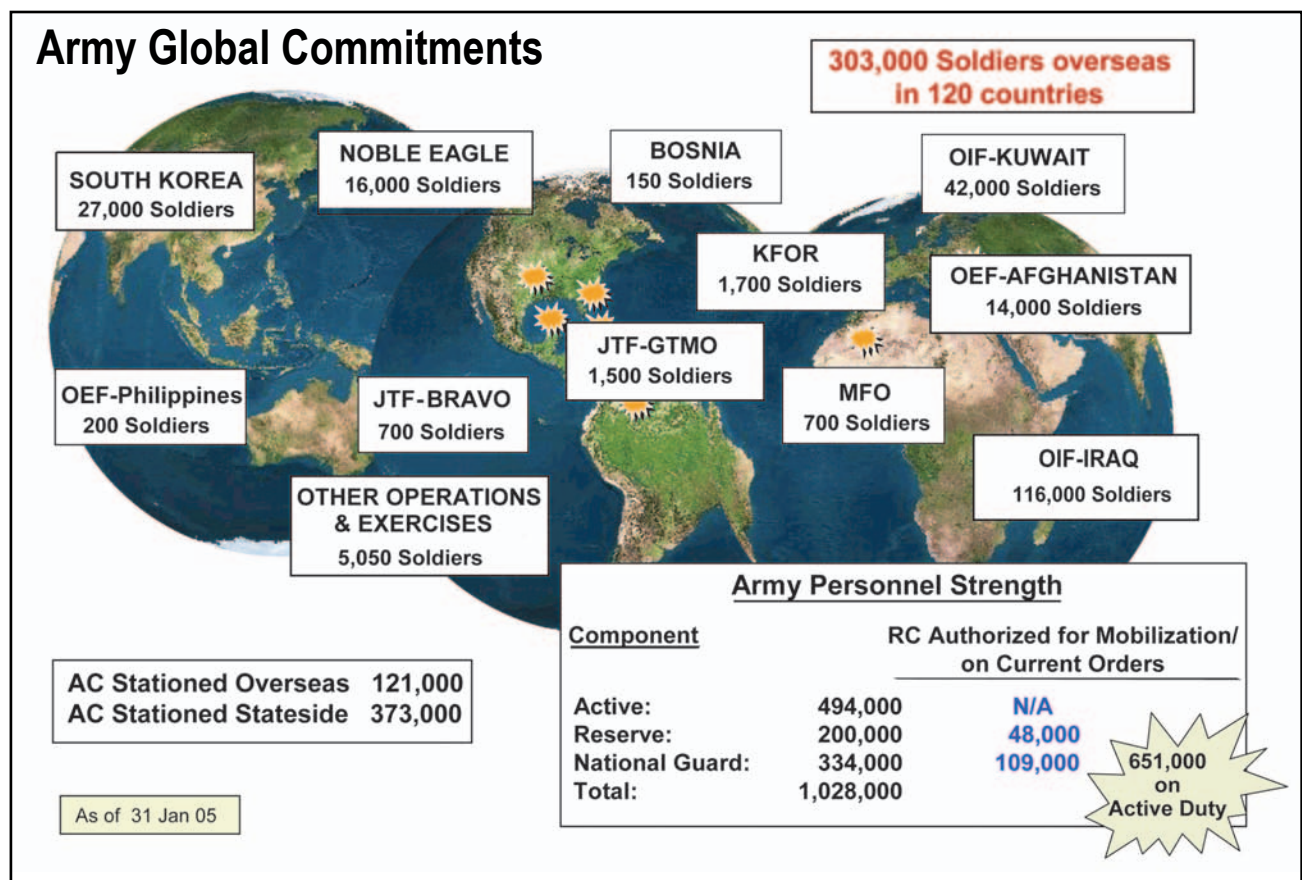


Figure 1. Army Global Commitments

most especially the current terrorist threat, represent not only the imperative for the military and Army to change, but also influence the method by which changes take place.

Within this new strategic environment, Operations Enduring Freedom and Iraqi Freedom have been major undertakings by the United States and have involved a significant commitment of Army forces as part of multiple joint operations conducted by the regional combatant commanders (Figure 1). Both operations, though containing many conventional aspects, have provided valuable insights concerning the changing operational environment, the adaptability of our enemies, and the complexity of challenges within the Joint Operational Area (JOA).

Army forces are assuming a more significant role in stability operations, which consistently display characteristics and costs organic to major combat operations. In the new strategic environment, stability operations are no longer considered to be “lesser included” missions. The lessons learned from ongoing operations confirm the critical importance and required level of involvement of all components—AC and RC—and civilian elements of the Army structure necessary for the current and future joint fight.

The emergence of irregular challenges and burdens of post-conflict operations have stretched the U.S. military. Protection from geographic distances has diminished, while new challenges and threats have grown. Current trends toward regional and global integration may render interstate war less likely, but stability and legitimacy of conventional political orders are vital to U.S. interests. A nexus of dangerous new actors, methods and capabilities will imperil the United States, its interests and its alliances in strategically significant ways.

Persistent and Emerging Challenges

The National Defense Strategy (NDS) advances a typology of four types of interrelated, persistent and emerging security challenges that more accurately reflects the diverse array of threats of the new strategic environment. The new classification does not create precise or discrete boundaries between the types of challenges, and adversaries will seek to employ a variety of capabilities against us. Following are the four broad types of likely challenges:

- **Irregular challenges** are unconventional methods adopted and employed by non-state and state actors to counter stronger state opponents.
- **Traditional challenges** are largely represented by states employing legacy and advanced military capabilities and recognizable military forces, in long-established and well-known forms of military competition and conflict.
- **Catastrophic challenges** involve the surreptitious acquisition, possession and possible terrorist or rogue employment of WMD or methods producing WMD-like effects.
- **Disruptive future challenges** are those likely to emanate from competitors developing, possessing and employing breakthrough technological capabilities intended to supplant an opponent’s advantages in particular operational domains.

To achieve success against these challenges, we must be capable of operating across the spectrum of conflict in a wide variety of conditions. We must rapidly transition between missions with appropriate force mix and capabilities. We must integrate activities in joint, interagency and multinational (JIM) environments in order to

address more diffused and networked adversaries by integrating all elements of power—diplomatic, military, economic and information in a more interconnected security environment within a global strategy.

Transformation as a Strategic Imperative

To ensure U.S. forces continue to operate from a position of overwhelming military advantage to deal with these challenges and in support of strategic objectives, we must embrace the present new realities. First, the United States will be increasingly challenged by a diverse and dangerous set of potential adversaries ranging from rising regional powers to terrorist movements and irresponsible regimes unbounded by accepted restraints governing international behavior. Second, Iraq has not stabilized, and it is still unclear how long the United States will be involved there. Third, the world looks to the United States for leadership in a crisis—to the point of hazarding

inaction without our participation. Finally, in many instances, only the United States has the requisite capabilities to effect enduring resolutions and acceptable outcomes for complex crises. The future Joint Force must retain a quality of adaptive dominance—the ability to dominate any situation regardless of how an adversary reacts. This adaptive quality requires a Future Force with embedded versatility and adaptive Soldiers and leaders who can master the critical variables organic to the future operational environment. The primary challenges for the Army in dealing with adaptive threats are summarized in Figure 2.

The National Security Strategy, the National Defense Strategy, and the National Military Strategy

In September 2002, the National Security Strategy (NSS) was published to provide a

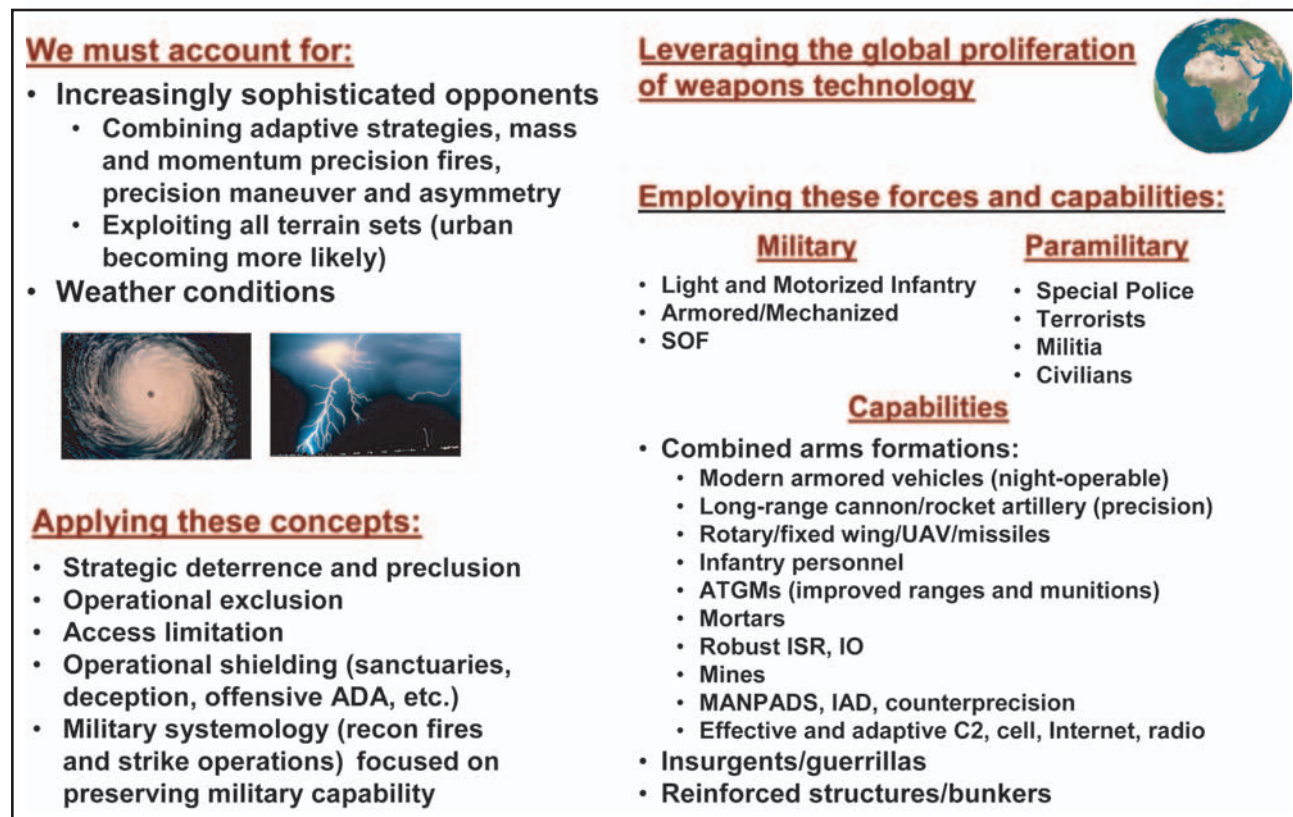


Figure 2. Adaptive Threats

foundation for current operations as well as vision to meet future challenges. It seeks to make the world not just safer but better through a unique set of ends, ways and means (Figure 3).

In fulfilling its responsibilities to support the NSS, the DOD has developed and updated as of fall 2004, a defense strategy that seeks to reach the goals set forth in the President's strategy by extending U.S. influence, prosperity and goodwill while preserving the nation's security through a reliable environment where both the United States and its allies can prosper in freedom. The 2004 NDS was built upon the strategy outlined in the 2001 Quadrennial Defense Review (QDR). Acknowledging that much has changed since the QDR was written, the NDS seeks to update the strategy (written in the ends, ways and

means construct) with operational lessons learned (Figure 4).

The 2004 National Military Strategy (NMS), signed by the Chairman, Joint Chiefs of Staff (CJCS) on 11 May 2004, seeks to operationalize the NSS and NDS. The NMS (Figure 5) describes how the Armed Forces will achieve the "ends" of the NSS and NDS by defining military objectives for the near term. The NMS also describes the vision for ensuring the dominance of the Joint Force in the future (note: the 2004 NMS supersedes *Joint Vision 2020*).

Evolving the "1-4-2-1" Force-Sizing Construct

The military means with which the strategy will be executed is through the Joint Force construct. The Joint Force must be an adaptable,

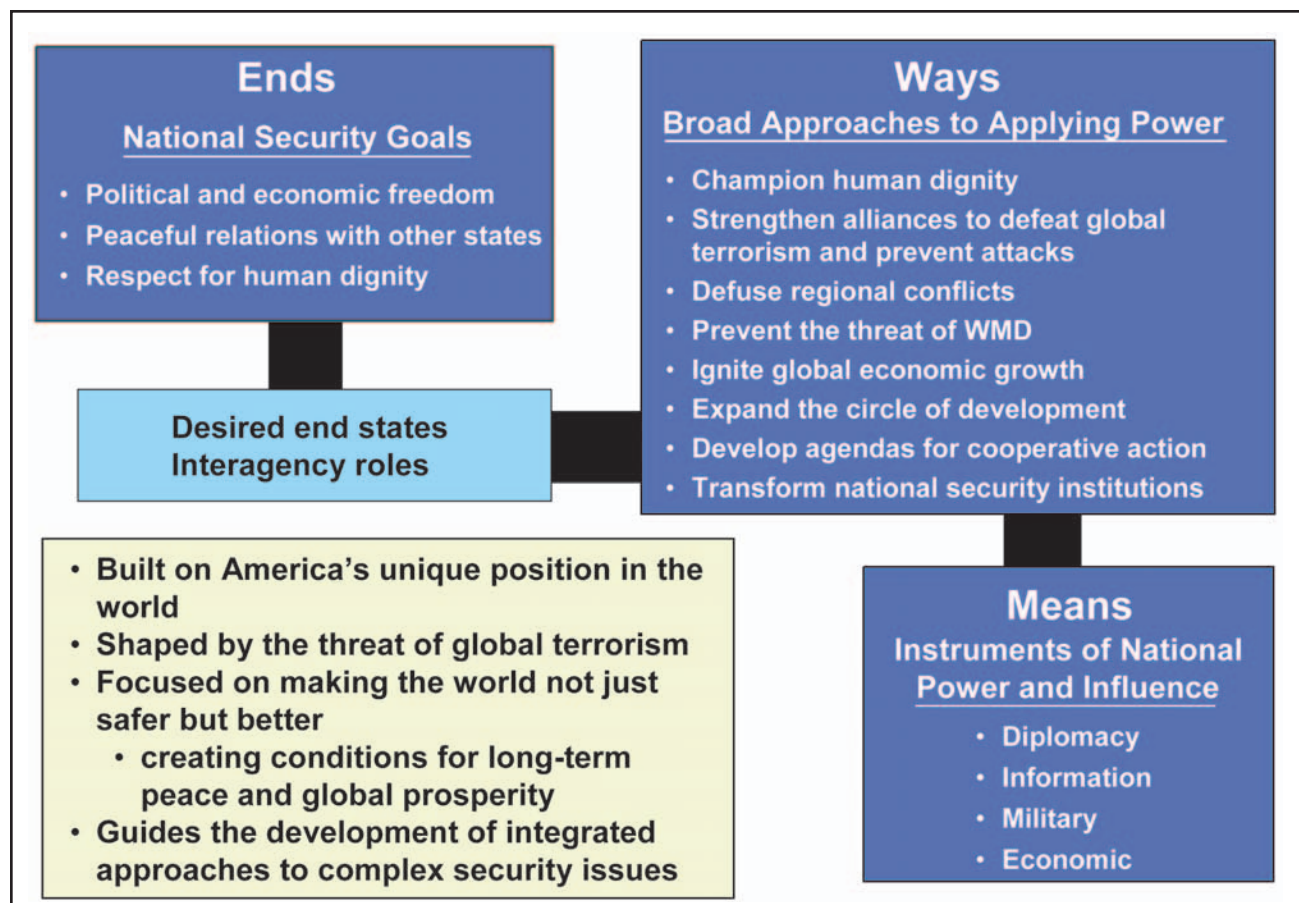


Figure 3. National Security Strategy Elements

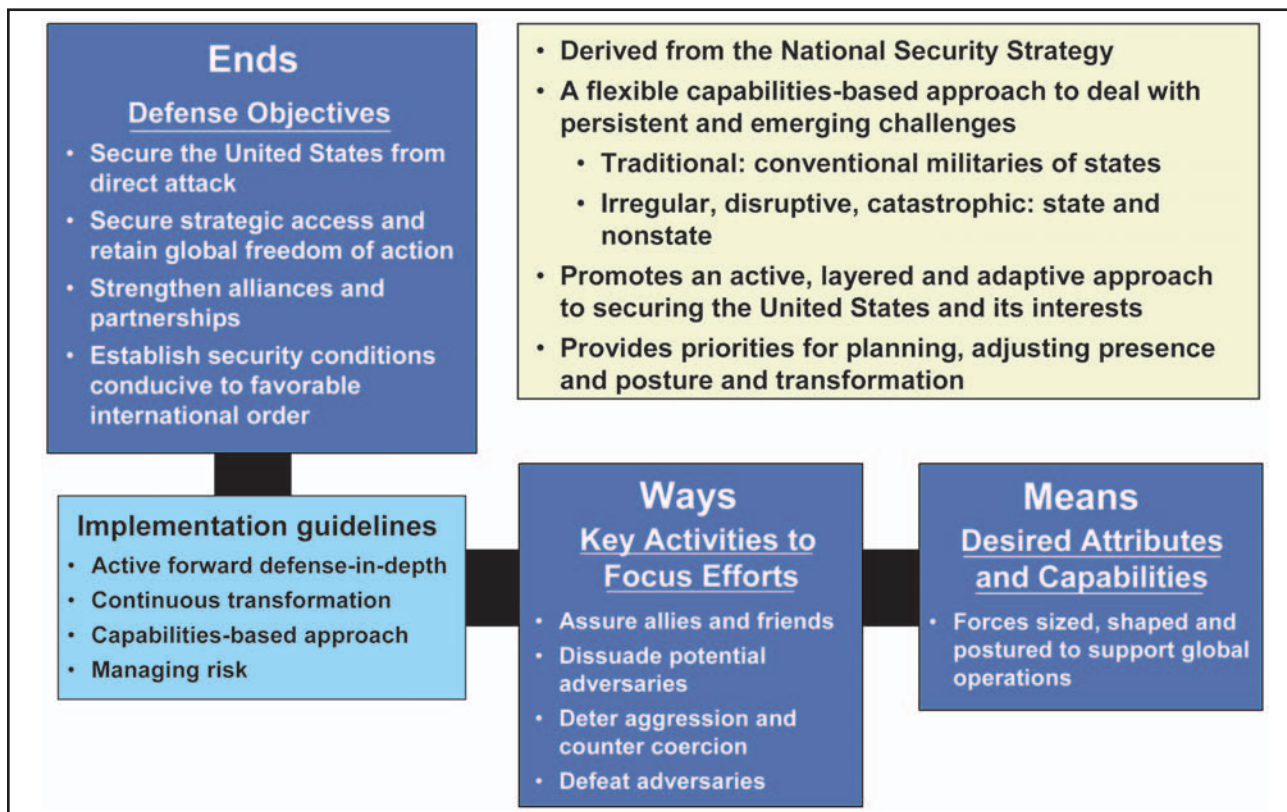


Figure 4. National Defense Strategy Elements

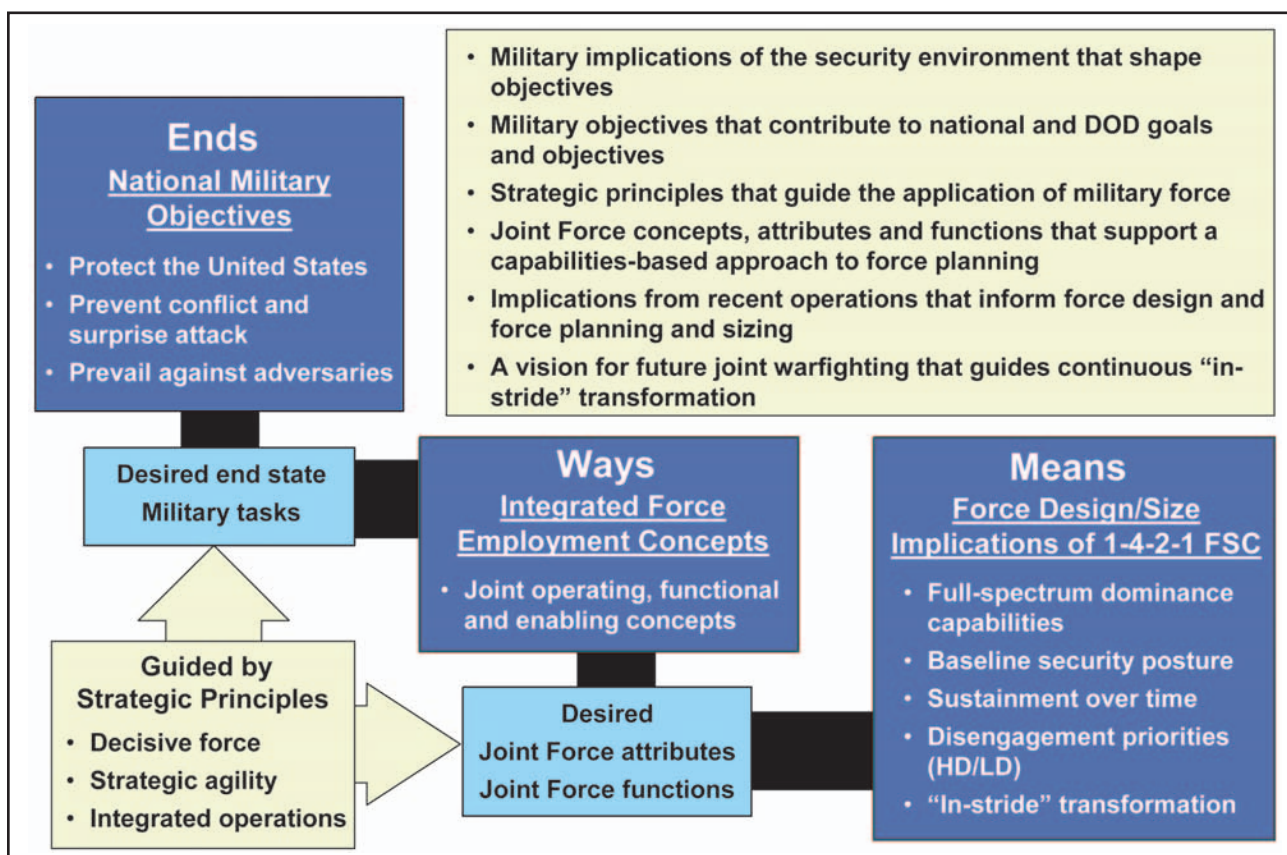


Figure 5. National Military Strategy Elements

fully integrated organization that is networked with all other instruments of national power. The 2001 QDR laid down a force-sizing construct that shapes and sizes the means of the defense strategy. The 1-4-2-1 model, like other forms of strategic guidance, has been updated (Figure 6) to reflect prudent lessons and revelations gained through lessons learned from our ongoing global war on terrorism. Although not specifically enumerated, capabilities and force structure for stability operations and for the war on terrorism are now included in the construct as elements that span the entire range of activities described in the construct.

The 2004 Army Strategic Planning Guidance: “Ends, Ways and Means”

The *Army Strategic Planning Guidance* (ASPG), Section I of *The Army Plan*, is the Army’s institutional strategy and serves as

its principal long-range planning document. The ASPG expresses the senior leadership’s intent for how the Army will fulfill its Title 10 obligations to the Joint Force and the nation in support of and nested under the NDS and NMS.

Last year’s ASPG provided a new vision and direction for the Army in the context of a security environment fundamentally changed by the global war on terrorism. The updated ASPG does not alter that direction significantly, but it does identify areas where additional emphasis is needed to maintain momentum for transformation and change. To provide necessary focus, the Army is introducing ten new strategic imperatives. These strategic imperatives will guide how the Army organizes, trains and equips its forces to ensure mastery of the full range of military operations and dominance in armed conflict.

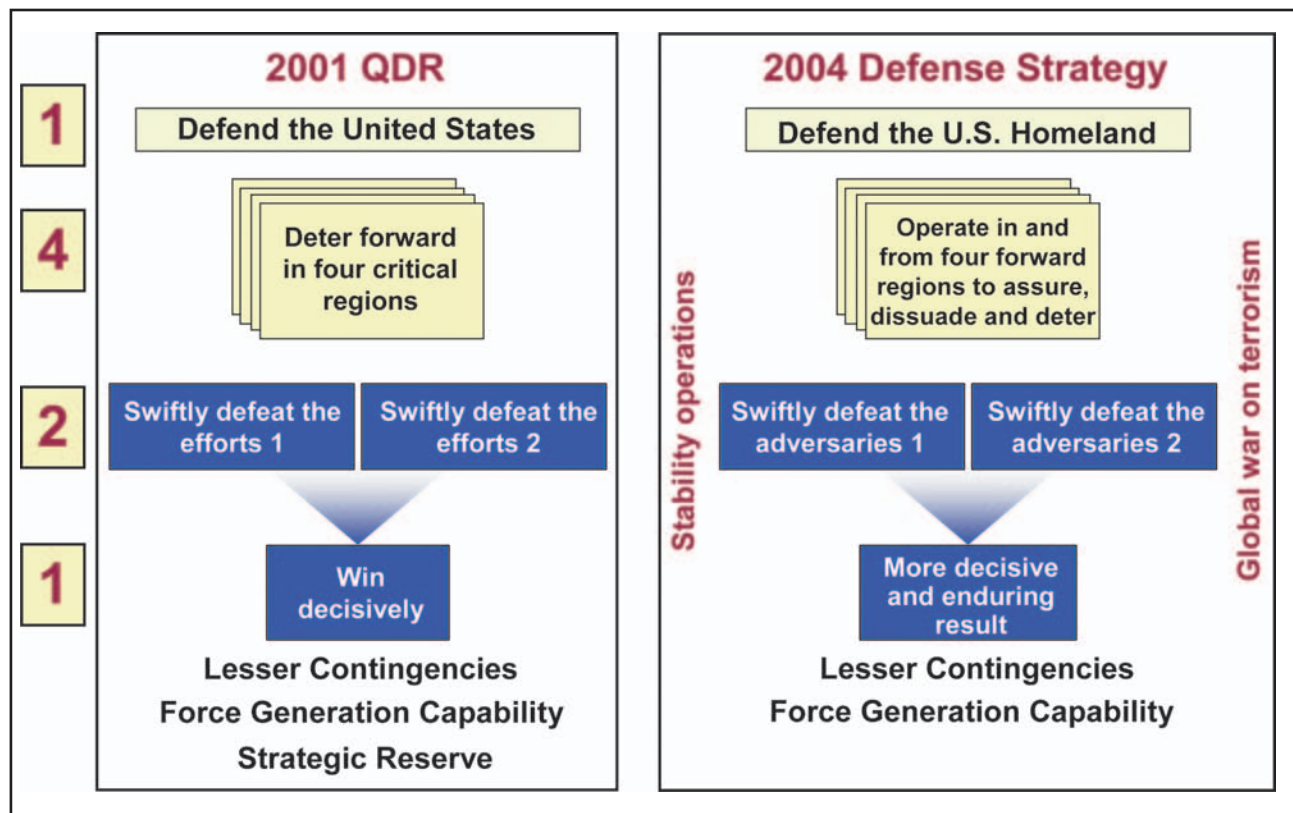


Figure 6. Force Size Construct

This year's ASPG expresses the Army strategy (Figure 7) to provide capabilities to the combatant commander in terms of "ends, ways and means." The strategic objectives are the "ends" of the Army strategy. They explain what the Department of the Army (DA) does to support the national strategy. These two objectives are the basis for all Army strategies. There are two types of "ways." The first of these is our Title 10 functions: train, organize and equip; these functions are constant and mandated by law. The second category is the Army's strategic imperatives, which are not static. They elaborate on how the Army should focus itself to be relevant and ready to meet the challenges of the current and future security environment. The "means" of the Army's Strategy are our people

and the assets the Army uses to perform its functions.

Quadrennial Defense Review

The congressionally-directed QDR process is an important element in influencing the development of future defense and Army strategies in light of ever-evolving circumstances. The National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65, directed, "The Secretary of Defense shall every four years, during a year following a year evenly divisible by four, conduct a comprehensive examination (to be known as a quadrennial defense review) of the national defense strategy, force structure, force modernization plans, infrastructure, budget plan, and other

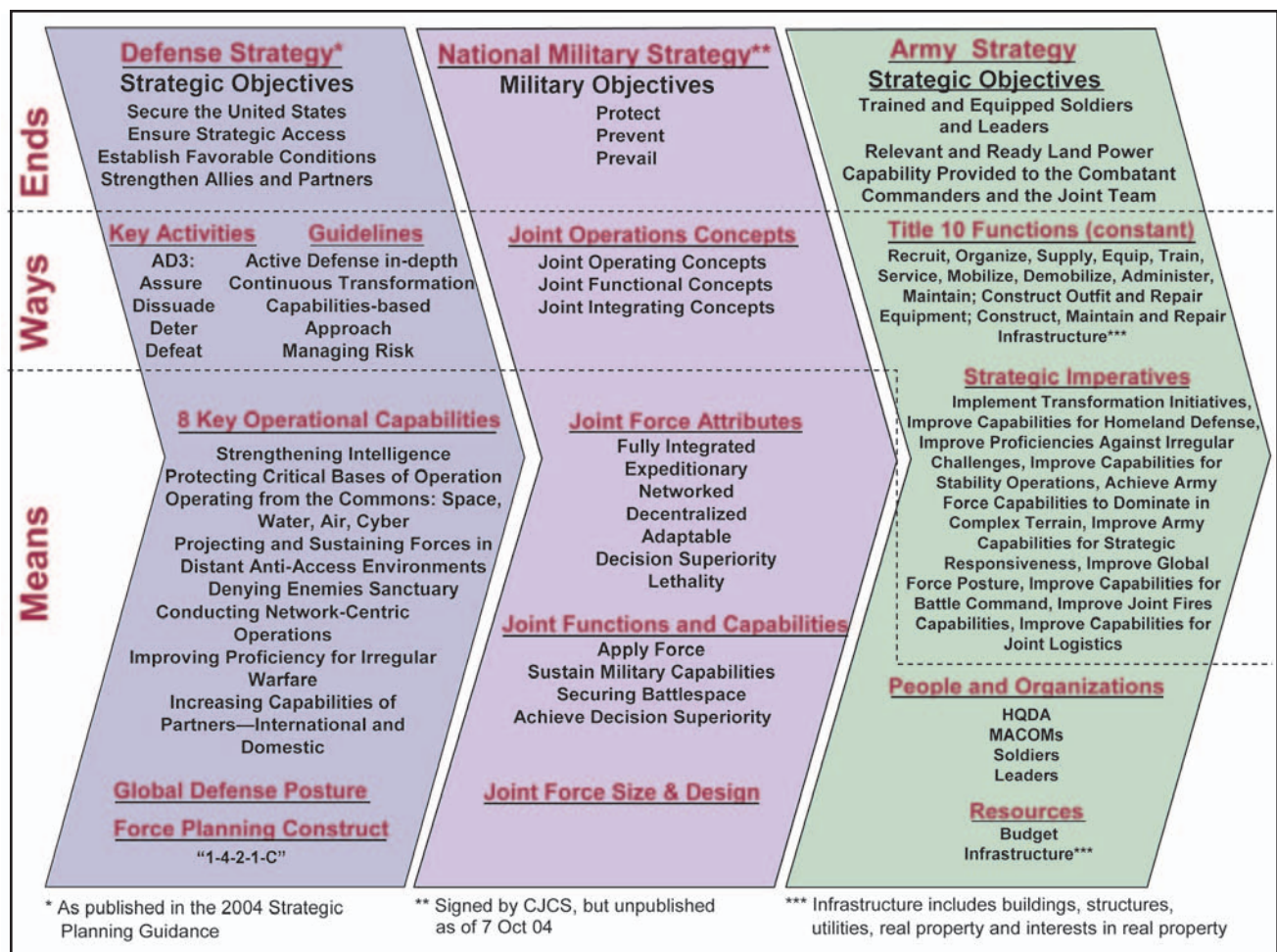


Figure 7. Army Strategy

elements of the defense program and policies of the United States with a view toward determining and expressing the defense strategy of the United States and establishing a defense program for the next 20 years. Each such quadrennial defense review shall be conducted in consultation with the Chairman of the Joint Chiefs of Staff.” The National Defense Authorization Act for FY 2003, Public Law 107-314, provides additional time to complete the QDR and submit the report to Congress. For QDR 05, this translates to on or about 1 February 2006.

The QDR report is expected to address:

- Strategy and force structure
- National security interests
- Threats and scenarios
- Assumptions
- Effects of operations other than war and small-scale contingencies on high-intensity combat
- Engagement policies for conflicts lasting more than 120 days
- RC roles and missions
- Tooth-to-tail ratio
- Lift (strategic and tactical, sealift and ground transportation)
- Required forward presence and prepositioning
- Inter-theater resource shifting
- Unified Command Plan revisions
- Effect of anticipated technologies (ensuing 20 years)

Overall, this process and the ensuing report will be an important vehicle to shape, pre-

pare and present long-range analyses and information so that the capabilities, structure and resources of the future Army, as well as those of the other Services, best support the needs of the nation.

Joint Concepts, Capabilities and Interdependencies

The context for developing future military concepts and capabilities is the linkage between how the Joint Force operates today and the vision for the future. The joint concepts and associated capability requirements under development by the Joint Staff, combatant commands and Services influence Army transformation efforts. These concepts are intended to serve as the engine of change to guide the transformation of the Joint Force to operate successfully in the next 10 to 20 years.

Joint concept development occurs within an evolving framework that includes the overarching Joint Operations Concepts (JOpsC), Joint Operating Concepts (JOCs), Joint Functional Concepts (JFCs) and Joint Integrating Concepts (JICs), as shown in Figure 8. The JOpsC describes how the Joint Force intends to operate 10 to 20 years in the future across the entire range of military operations. The JOpsC also provides the operational context for transformation by linking strategic guidance with the integrated application of joint-force capabilities. The four JOCs describe how a future joint force commander will plan, prepare and conduct specific operations and identify the capabilities required for each. The JOCs are homeland security, strategic deterrence, major combat operations and stability operations.

Joint functional concepts articulate how the future joint force commander will integrate a set of related military tasks to attain capabilities required across the range of military op-

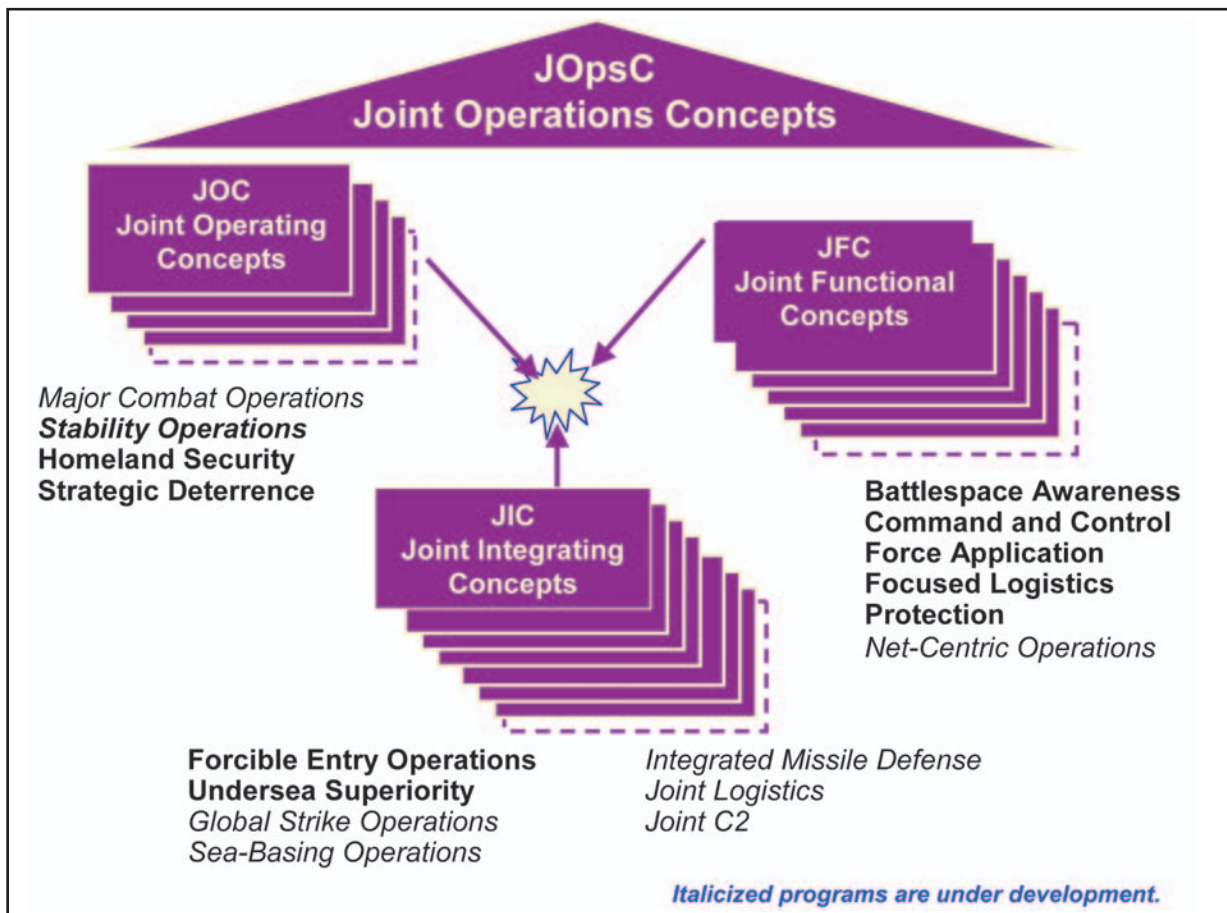


Figure 8. Joint Concepts

erations. They are broad, but derive specific context from the joint operating concepts. JFCs allow for experimentation and measures of effectiveness.

Joint integrating concepts are intended to be building blocks for JOCs or JFCs, and will describe how a commander integrates functional means to achieve operational ends. They are anticipated to focus on a narrow portion of a JOC or JFC and further describe capabilities in terms of essential tasks, attributes, and measures of effectiveness and performance that form the means to identify capability gaps and redundancies.

The Army and our sister Services have made significant improvements in the planning and conduct of joint operations, progressing from joint interoperability (the assurance that Ser-

vice capabilities can work together smoothly) to joint integration (collective efficiency and tempo). Yet joint operations continue to suffer from a myriad of gaps and seams that often hinder mission effectiveness. For example, targeting opportunities are missed because deconfliction and prioritization takes too long; sustainment can be delayed due to inadequate asset visibility and factional pipeline management. These gaps and seams can result in suboptimal force efficiency as well. This occurs when, at the expense of other valid requirements, individual Services deem it necessary to compensate with organic capabilities that, in terms of total aggregated force structure, may be overly redundant.

The Services must collectively progress from merely deconflicting their activities to achieving joint interdependence. Joint interdepen-

dence is the purposeful reliance on other Service and joint capabilities to maximize their complementary and reinforcing effects, while minimizing Service vulnerabilities in order to achieve the mission requirements of the joint force commander. What differentiates joint interdependency from joint interoperability and joint integration is the degree by which the Services collectively embrace the altruistic concept of purposeful reliance. Commitment to joint interdependency must be preceded with a prerequisite understanding of the differing strengths and limitations of each Service's capabilities, clear agreement about how those capabilities will be integrated in any given operational setting and, above all, absolute mutual trust that, once committed, capabilities will be employed as agreed in the major areas of joint interdependency.

There must be a shared foundation on which the Services build their respective transformation efforts. Without such, each Service will invest its respective treasure developing their individual versions of joint warfighting and based on their individual prioritizations. The Army has invested much treasure in restructuring itself into modular brigade-based units and developing revolutionary FCS; however, these significant initiatives will be of marginal value to the joint force commander unless we can collectively improve strategic and operational responsiveness.

Joint interdependency, as we have defined and developed it, inarguably forms this shared foundation. Beyond that, joint interdependent projection, protection, support and sustainment will optimize the Services' capabilities to best allow the joint force commander to effectively take the fight to a land-based enemy. It also provides the best means of maintaining the right force structure mix capable of meeting the breadth, depth and longevity of the current fight, while still maintaining the

necessary focus on threats in the future operational environment. Below are five key areas for development effort to advance joint interdependency:

- **Joint Battle Command** represents a joint force commander's ability to dominate any adversary or situation in full-spectrum operations, and to make qualitatively better decisions than an adversary at a tempo that cannot be matched. The development and fielding of integrated joint battle management command capabilities will enable U.S. forces to collaboratively plan and rapidly share a common, accurate picture of the battlespace. The future Joint Force will exercise battle command within an inherently joint, top-down network that provides common situational awareness. To succeed, this effort requires the alignment and synchronization of three major elements: operational concepts and doctrine, horizontally and vertically integrated systems, and the joint technical architecture standards and Global Information Grid where layered networks are nested.
- **Joint Air and Missile Defense** integrates the counters to the threat from ballistic and cruise missiles, armed and unarmed unmanned aerial vehicles (UAVs), and rockets and missiles have grown steadily in light of U.S. dominance against the manned, fixed-wing threat and as sophisticated missile technology became available on a wider scale. WMD proliferation poses a direct and immediate threat to the security of U.S. military forces and assets in overseas theaters of operation, our allies and friends, as well as our own country. An interdependent joint air and missile defense "system of systems" must be capable of providing very high-confidence protection that extends beyond the JOA and includes the Joint Force, regional

coalition partners and their forces, our homeland and other agencies.

- **Joint Fires and Effects** mitigates risk and reduces reliance on organic fires in a joint expeditionary environment. Joint fires and effects interdependency involves ensuring timely support and optimizing the overall capability of the Joint Force within a distributed battlespace. The future joint fires system of systems will use a collaborative information environment to sense, understand, decide and act faster than an adversary, gaining the desired operational effects with a combination of lethal and nonlethal means. Linked through an effective joint command and control system, the American Soldier will have the entire target acquisition and engagement resources of the theater at his fingertips.
- **Joint Force Projection** represents both the current and projected suite of strategic lift capabilities that is insufficient to meet DOD swiftness goals for strategic responsiveness of the Joint Force within the NMS. In particular, neither the airlift nor the sealift programs projected for the next 20 years fulfill force projection

capabilities gaps. With respect to campaign execution and operational agility, the currently programmed Joint Force also lacks the intra-theater capability to execute and sustain simultaneous operations, distributed within a noncontiguous battlespace.

- **Joint Sustainment** transitions us from Service-centric, supply-based, regionally focused logistics systems to a single, fully integrated, globally synchronized, end-to-end distribution-based system capable of providing agile, precise and responsive support to tailored expeditionary joint forces conducting distributed operations. Dramatic changes in the joint operational environment prescribe operational maneuver of forces from strategic distances directly to the operating area, wherein they will conduct simultaneous distributed operations within a nonlinear and noncontiguous framework. Successful employment of this concept demands the concurrent transformation and employment of a corresponding sustainment concept; to do otherwise carries the unacceptable risk of deploying forces that cannot be effectively supported.

2005 ARMY MODERNIZATION PLAN

ARMY TRANSFORMATION

Transformation is a process that anticipates the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people and organizations. These combinations employ the nation's advantages and protect against asymmetric vulnerabilities to sustain the U.S. strategic position, helping underpin peace and stability in the world. The Army presently is fully committed to pursuing the most comprehensive transformation of its forces since World War II. These transformation efforts are both evolutionary and revolutionary in nature, and they are intended to improve Army and Joint Force capabilities to meet the demanding requirements of a nation at war as well as the future full-spectrum requirements. They also encompass more than just materiel solutions and involve a wide array of adaptation, development and experimentation, as well as application of lessons learned in all aspects of Army institutions and operational formations.

Transformation Strategy: Current to Future Force

In recent years, the Army has built upon its vision for a Future Force that is more capable of rapid strategic response and tactical dominance across the full spectrum of military operations. The primary instrument for accomplishing this goal is a dramatic process of change—Army transformation—that aims at making the Army more ready for today's missions and more relevant in its capability to serve as an essential element of the overall Joint Force. Along with Army transformation, two other critical components made up

the substance of the Army's vision for the future—readiness and people. Readiness was identified as the Army's top priority for near-term responsibilities to the nation, with people highlighted as the centerpiece of the Army and its critical link to the nation. This entire effort has always been linked to the responsibility of the Army to serve the nation and its interests as part of a Joint Force comprised of all military Services.

The Army's overall transformation strategy is focused on achieving the objective of a campaign-quality force with joint and expeditionary capabilities to provide relevant and ready land power to the Joint Force—today in the midst of the ongoing war, and tomorrow in the face of evolving challenges. The means employed are comprehensive in nature and involve changes in the culture, processes and capabilities of the Army. Cultural change depends on innovative Soldiers and leaders, all of whom are imbued with Army values and a Warrior Ethos that is committed to mission success and is unwilling to accept defeat. Changes in processes involve a more inherently joint perspective that builds on joint requirements and operating concepts, and develops capabilities needed by the Joint Force today and projected for tomorrow. Ultimately, the changes in the development of operational capabilities that build on joint independencies will be the measure of true success. To accomplish all of these components of transformation, the Army must have a sound plan, fully synchronized efforts and the resources necessary to support efforts over time.

The Army has made considerable progress in its transformation efforts and has established momentum on a path to a Future Force possessing new and improved capabilities. Significant investments have been made to explore and develop revolutionary capabilities to provide our Soldiers and units. Some new capabilities have already been fielded to units in the Current Force, including those capabilities resident in the new SBCTs that are being formed. Further development of significant capabilities is well underway with the progress made in the evolution of the FCS. Progress is by no means limited to new equipment, and efforts continue across the full range of DOTMLPF to realize new capabilities that will support the emerging Joint Force attributes and concepts needed to implement national and defense strategies. It is the effective integration of all of these areas that will ultimately link Soldiers and leaders into combat-capable

units that can fulfill the entire array of missions in the new security environment.

The evolving Army transformation process and framework (Figure 9) is continuous and dynamic and builds on a long history of adaptation and change in the U.S. Army. It encompasses all aspects of the Army, including the Current Force and the ever-evolving Future Force. The security environment within which this process occurs is shaped by external challenges, national strategic and defense guidance and evolving joint concepts. These environmental factors have all been undergoing considerable change in the recent months due to the demands of the ongoing global war on terrorism, including operations in Iraq, and the emerging refinement of JOCs and the system for producing JICs.

By far the most important factor has been the dramatic change in the strategic environment

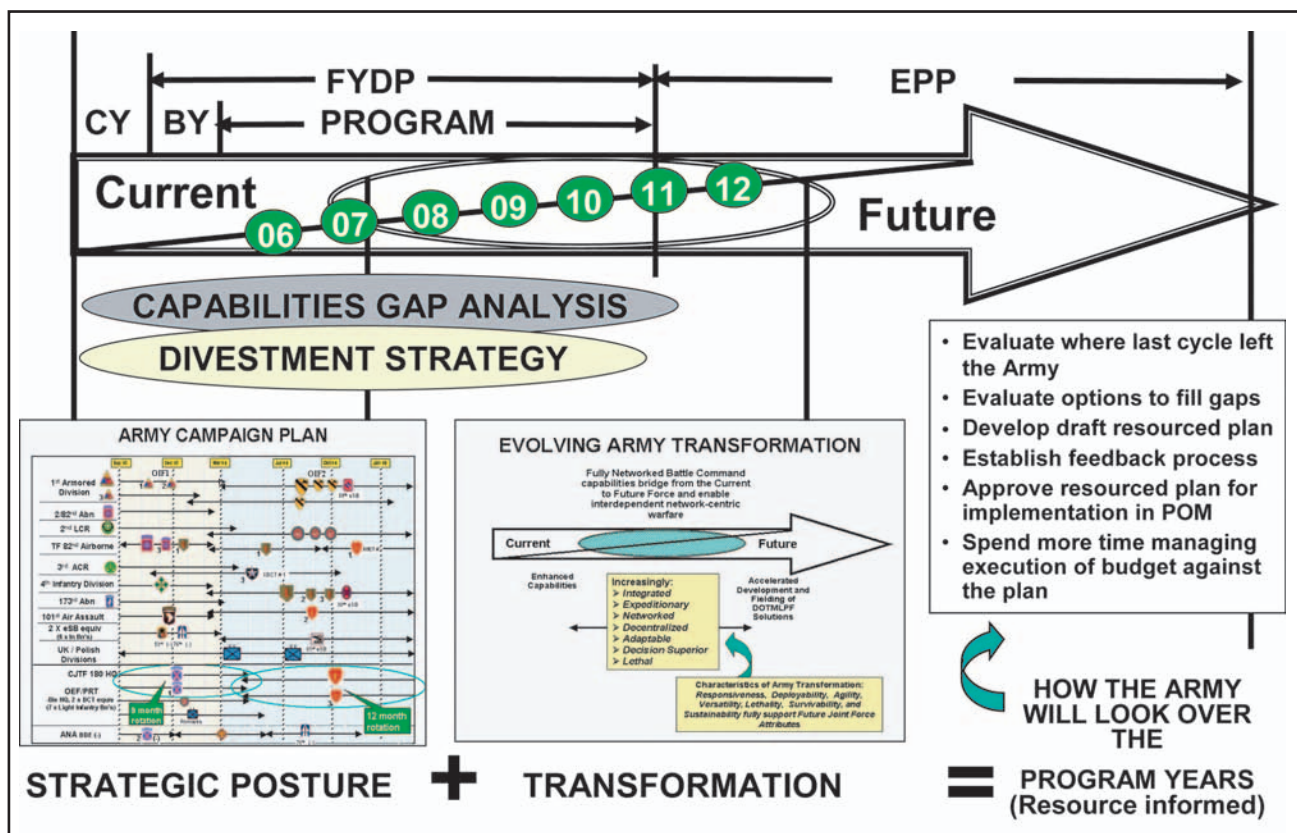


Figure 9. Army Transformation Conceptual Framework

posed by the operational challenges associated with the global war on terrorism. The demands for readiness of the Army to meet current requirements in this ongoing war have taken on an increased and higher priority in light of the risks to the nation and our Soldiers; thus, the Army's transformation plans must be and have been adapted to rebalance the associated strategy and implementing efforts. The examination of immediate focus areas, begun in 2003 and largely completed in 2004, has been an important means in this rebalancing effort. People—primarily our Soldiers, but also their families and the associated civilian and contractor support personnel—still remain as the centerpiece of the Army, current and future. Yet, transformation of an Army at war must continue to develop those capabilities making the Army more ready and relevant and with enhanced joint and expeditionary characteristics to accomplish the range of current missions. The imperatives for transforming the Army while in contact have created a greater need to apply the benefits of emerging technologies at a faster pace to achieve a wider range of capabilities as soon as possible. Simultaneously, within this context adequate resources must still be devoted to developing capabilities to maintain a military advantage against future threats.

The global war on terrorism also provides an immediate window of opportunity for the Army to transform organizationally, materially and culturally. As units return from overseas deployments, they must take time to rest and regenerate their combat capabilities—a period we call reset. With the support of Congress, the Army is using this reset period to reorganize to more effective, modular formations. This enables the Army to transform organizations for future operations instead of merely resetting them. This process ensures

that the Army meets its two most pressing missions: winning the current war and transforming for the future.

Current and Future Readiness and Capabilities

The Army frames its transformation through the interaction of evolving current and future readiness and associated capabilities. Today's Army—the Current Force—is the force that is available to function as part of the Joint Force in sustaining global commitments now, particularly in the global war on terrorism. The ability of this Current Force is integral to the Army's fundamental obligation to the nation, and it must be preserved. The Future Force is the operational force that the Army continuously seeks to become, and it will be one that maintains capabilities that dominate land operations in any future conflict or mission as a member of Joint Force. These two forces are closely related, and the readiness and development of each has a direct impact on the other. The readiness of today's Army provides the opportunity to develop a Future Force, and it serves to inform progress through its current operational experience and experimentation. Development of the Future Force, on the other hand, can serve to accelerate application of capabilities that can also enhance the Current Force. Thus, there is a dynamic relationship between these forces that requires careful attention and balancing of efforts and risks to ensure the best and most efficient return from limited resources. Moreover, sustaining and enhancing capabilities while engaged in a war poses a formidable challenge in this balancing process, with the demands of ongoing operations and commitments directly affecting the scope and pace of focused change. The Army addresses this balancing requirement through a continual and flexible reassessment of its plans and programs to ensure that current

requirements are met and future opportunities are pursued.

Today's operational Army—the Current Force—remains the dominant land force in the world. We can make this force even better—a strategically responsive, joint interdependent, precision maneuver force that embodies the Army's concept of the Future Force. Previously, we put off modernizing the capabilities of the Current Force to pay for programs meant for the Future Force. War changes this paradigm. Our frontline Soldiers deserve the most promising capabilities today for better combat effectiveness and protection.

Balancing Current and Future Force transformation requires careful determination about when and how we introduce change into the force. Too much, and we destabilize our formations. Too little, and we deny our Soldiers the most promising capabilities. To manage this process, the Army has developed a comprehensive strategy that accelerates critical capabilities to our fighting forces while continuing to build a campaign-quality Future Force with joint and expeditionary capabilities.

Current Force

Restoring Readiness

Under the overarching program, “setting the force” or “reset,” the Army returns units to prehostility readiness levels while providing resources to win the fight, transform, modernize and recapitalize. Specifically, setting the force executes Army activities that return all deployed equipment to fully operational standards, upgrade capabilities implementing Operation Iraqi Freedom and Operation Enduring Freedom lessons learned, reorganize to modular designs in accordance with the

Army Campaign Plan, replace obsolete equipment in prepositioned stocks, and reconfigure those stocks to be more strategically relevant and responsive. Congressional support in the form of supplemental appropriations ensures that returning Army formations are transformed in an effective and structured manner to support future operations.

As units begin to redeploy from operational theaters, the Army will continue to set the force to meet future requirements. The goal is for all returning active duty units to achieve a sufficient level of combat readiness, equipment and training, within six months of their arrival at home station. RC units will take longer to achieve their desired level of readiness, and the goal for them is to re-establish readiness within one year. These reconstitution efforts—involving people, equipment and training—will culminate with a certification exercise to ensure the ability to meet combatant commanders' near-term requirements.

Campaign-Quality Army with Joint and Expeditionary Capabilities

Our continuing missions demonstrate the Army's unique durability, versatility and ability to control land, people and resources. The Army maintains a nonnegotiable contract to fight and win this nation's wars. An essential component of this contract is the Army's ability to sustain operations and establish suitable conditions necessary to achieve favorable resolution of conflicts. This requires the Army to sustain and adapt its operations. This is the Army's preeminent challenge today. The Army must reconcile expeditionary agility and responsiveness with staying power, durability and adaptability to achieve victory.

The Army must also remain aware that Army forces are integral components of the Joint Force. Each Service excels at employing

a wide variety of capabilities within specific domains—land, sea, air, space and cyber—to create overwhelming dilemmas for our enemies. Current and future challenges in the operational environment demand unprecedented levels of joint interdependence. This interdependence is a purposeful reliance by the Army on its sister Services to maximize complementary and reinforcing effects while minimizing individual Service vulnerabilities.

The prerequisites of this common commitment to interdependence are broad understanding of the strengths and limitations of each Service's capabilities, clear agreement about how those capabilities will be integrated during operational employment, and the absolute mutual confidence that capabilities will be employed as intended. The Army is implementing close collaboration with other Services and joint organizations as it develops doctrine and capabilities that foster joint interdependence. Furthermore, the Army is building joint-capable organizations at lower organizational levels to make joint interdependence a reality.

Reorganizing to a Modular Force

A central component of the Army's efforts to meet the demanding requirements of current operations and anticipated future missions is the major initiative that began in February 2004 for restructuring Army units into modular designs. This bold and comprehensive initiative is intended to provide Army units that are more relevant to the combatant commanders in today's environment and possess greater versatility in fulfilling the demands of frequent deployments, a wide range of missions, and true joint interdependency. This transformation into modular units is essential to effective support in the ongoing war on terrorism, since it will result in a greater number of Army units that are better organized to operate with

increased flexibility and self-sustainment for a wider range of missions.

The approval in 2004 of a 30,000 temporary increase in the Army's end strength enabled the beginning of the modular conversion of AC combat units, with four divisions scheduled for completion by 2005. The initial goal is to add 10 additional BCTs by the end of FY07, with the option for an additional five pending a review and decision in FY06. This would result in a potential increase to as many as 48 BCTs. Besides converting AC forces, the plan is to begin converting ARNG units during FY05, with the end goal of converting all 34 BCTs by FY10. These modularized BCTs will be organized into two major types: maneuver (heavy and infantry) and support (aviation, maneuver enhancement, reconnaissance and surveillance, fires, and sustainment), all of which will be better prepared to provide improved capabilities as well as reduce the stress on the force in meeting operational demands.

A campaign-quality Army with joint and expeditionary capabilities requires versatile forces that can routinely mount smaller, shorter duration operations—without penalty to the Army's capacity for larger, more protracted, campaigns. To meet this challenge, the Army is converting from a division-centric force to a brigade-centric force (Figure 10). The intent is to create more flexible and agile forces that are as capable as existing formations. Further, modular forces with common organizational designs will allow the joint force commander to tailor his requests for Army forces more easily—similar to ordering off a menu.

This modular conversion effort (Figure 11) is the greatest restructuring of our active and reserve forces since World War II. By the end of 2005, the Army's AC will convert nearly half

Creating Brigade-Sized Building Blocks of Combat Power

- Common organizational designs
- Adaptive headquarters capable of integrating joint operations
- Migrating division and corps joint and Army capabilities to the brigade-level
 - Units “organized as we fight”—requiring minimal augmentation
 - Capable, tailorable, relevant and ready organizations
 - Improved agility, versatility and deployability
 - Leverages joint interdependence

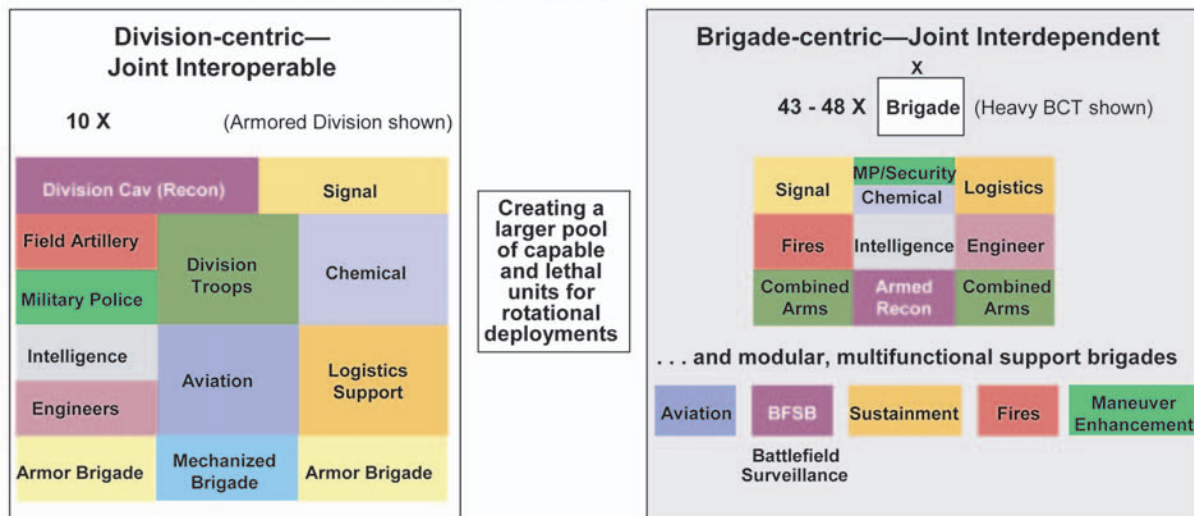
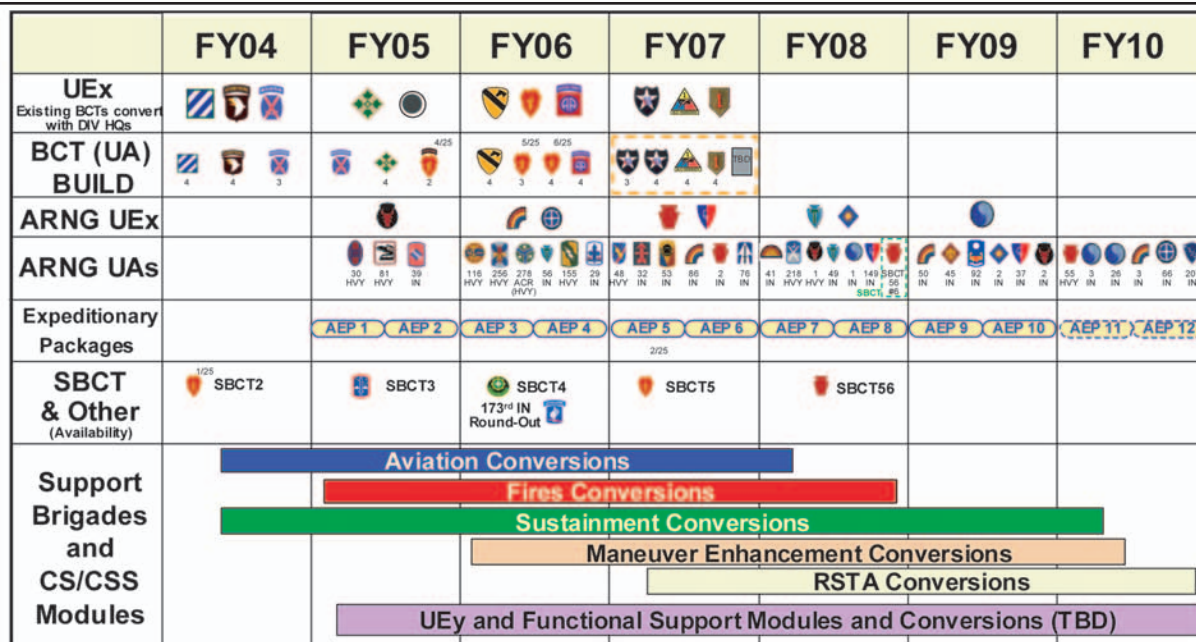


Figure 10. From Division- to Brigade-Based Forces



- Support global operations
- Build the Future Force
- Adjust global footprint
- Adapt institutional Army
- Sustain the right all-volunteer force
- Adapt and improve total Army capabilities
- Optimize Reserve Component contributions
- Develop joint, interdependent logistics structure

Figure 11. Implementing the Modular Force

of its warfighting headquarters and almost one-third of its maneuver brigades to the more capable designs. By the end of 2005, we will have created six additional brigades, improving the Army's "bench strength" to sustain operations for as long as required. Brigade-level headquarters for our support forces will also begin to modularly convert later this year. The Army will organize support brigades and reinforcing support modules that will be able to plug into or out of any headquarters—Army, joint or multinational.

Standardized battle command capabilities operating within robust networks will enable this change. Further, these capabilities will improve our joint interdependency and situational awareness across the force. When coupled with improved intelligence and target acquisition systems being fielding, the Army will improve its ability to fight for and maintain information superiority with faster speeds of command, enhanced self-synchronization between units, and dramatically increased combat effectiveness.

As for the specific timing of these modular conversions, the Army believes that the ideal time will be in conjunction with other recovery efforts for units returning from operational deployments and prior to any subsequent missions. The overall modular force initiative will generate procurement and modernization costs, and it will impact facilities and stationing as the unit activations and conversions are executed.

Modular conversion is discussed in greater detail under the heading of "New Structures" in Annex B, Organizations.

Balancing Active and Reserve Component Force Structure

As the Army creates modular capabilities, it is also restructuring for a more effective mix be-

tween AC and RC forces. This year, the Army reaches its midpoint in a restructuring effort affecting over 100,000 personnel and over 85,000 spaces of force structure. This restructuring effort enhances the Army's ability to provide required land power capabilities to the Joint Force. It also rectifies imbalances within the force while increasing AC capabilities available to support the first 30 days of an operation.

Despite these changes, the Army will remain stressed to meet anticipated requirements. The President alleviated much of this stress by providing us with a temporary 30,000-person increase in our operating strength to provide the Army sufficient headroom to accelerate transformation and fight the war. To retain these increased capabilities, the Army is implementing programs such as military-to-civilian conversions, reposturing of forces overseas, and additional reductions in trainee, transient, holdee and student accounts.

Stabilization

Over the past year, the Army has begun implementing its improved manning system that enhances unit readiness by increasing stability and predictability for commanders, Soldiers and their families. The Army also created a personnel stabilization program for the AC that complements a new rotation-based system of global force management. This stabilization initiative consists of two parts—the first increases stability for individual Soldiers and their families by keeping Soldiers in their assignments longer; the second component, Unit Focused Stability, synchronizes Soldiers' assignments to their units' operational cycles, providing more capable, deployable and prepared formations.

Army Force Generation

The new strategic context of continuous operations renders obsolete the old Army

readiness paradigm of “all ready, all the time.” Continuous, full-spectrum expeditionary operations are the new reality. The Army is transforming its concepts, capabilities and organizations to meet the demands of this new strategic context. Nested within Army transformation, the Army is developing an operational cycle (Figure 12) to optimize its process of force generation to provide a continuous supply of relevant and ready land power to joint force commanders and civil authorities at home.

The operational cycle pools AC and RC modular units into force packages to meet joint requirements. Those force packages are then assigned deployment windows based on cyclical phases—reset/train, ready, available—within the operational cycle to provide a continuous supply of ready forces. While preserving the capability to surge forces for

major combat operations, planning goals are one deployment in three years for AC forces and one deployment in six years for RC forces. Rather than the previous process of “tiered readiness,” priority of resources will be assigned to AC and RC forces based on their availability dates.

Like pieces of a puzzle, the operational cycle is interconnected with conversion to the modular force, force restructuring and unit stabilization. In fact, the operational cycle is a necessary complement to make those initiatives work. Modular Army organizations are pooled into force packages that make unit rotation easier to plan and execute. Restructuring the force optimizes the right capabilities in the right force packages to support continuous operations and improve strategic responsiveness. Units stabilize at the start of their operational cycles to keep

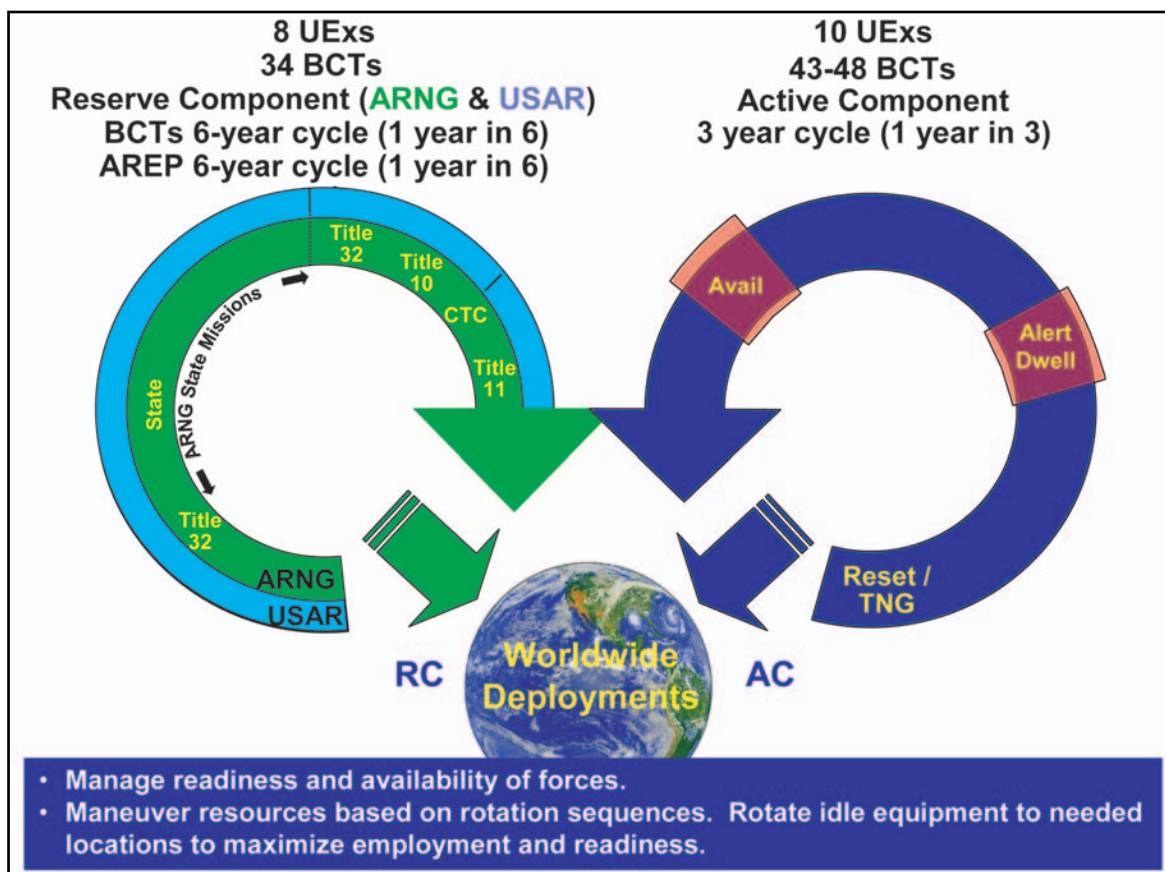


Figure 12. Army Force Generation

cohesive teams together through operational deployments. Implementing this concept will relieve stress on the force and provide time to train, predictable deployment schedules, and the continuous supply of ready land power to combatant commanders and civil authorities.

Global Force Posture

To improve its strategic responsiveness, the Army is improving its ability to rapidly deploy to austere fighting environments, fight on arrival throughout the battlespace, and sustain operations until victorious. The Army Reserve is being reorganized into modular forces that are aligned into expeditionary packages. These expeditionary packages are manned and equipped to equivalent levels as their AC counterparts in synchronization with their operational cycles. These packages can also be tailored to provide specific operational capabilities.

Parallel with the Base Realignment and Closure process, the Army is identifying critical joint power-projection installations to support the mobilization, demobilization and rapid deployment of Army forces. Also, the Army is enhancing force reception and deployed logistics capabilities to quickly respond to unforeseen contingencies.

To complete the transition to an expeditionary force, the Army will reposition ground forces to meet emerging challenges and adjust permanent overseas presence to a unit-rotation model that is synchronized with Army force generation initiatives. In Europe, both heavy divisions will return to the United States—being replaced by an airborne brigade in Italy, a Stryker brigade in Germany, and possible rotational presence within Eastern Europe. The Army will maintain a rotational presence in the Middle East while eliminating many of

our permanent bases. In the Pacific, the Army will maintain smaller forward-based forces, but will station more agile and expeditionary forces at power projection bases that can rapidly respond to any contingencies. Finally, the Army will leverage its improved readiness to increase its rotational training presence among our security partners.

Accelerating Change

Over the past year, the Army has significantly accelerated the tempo of transformation. The Army continues to adapt the resource processes so they become more flexible, dynamic, transparent and responsive. Soldiers remain the centerpiece of our formations. Their immediate demands are urgent, and fielding capabilities in the near term may outweigh protection of the program of record.

The Army is changing almost every aspect of its resource process. The Army generates requirements by looking at them from a joint context to ensure these requirements are congruent with DOD transformation efforts. We are also placing more emphasis on the needs of engaged commanders—fulfilling immediate, unprogrammed requirements while balancing resources to ensure long-term viability of the force. Finally, the Army is dramatically accelerating acquisition processes to meet the needs of joint force commanders today.

Through the RFI, the Army is purchasing and fielding state-of-the-art equipment at an unprecedented pace. Examples are 100 percent fielding of improved body armor to all Soldiers operating in Afghanistan and Iraq, advanced thermal sights and personal equipment, and a variety of state-of-the-art mission essential items. Congressional support for regular budget and supplemental spending requests enables the Army to put this improved equipment in the hands of Soldiers.

With this support, the Army also continues to field innovative technology solutions directly to operational commanders through the Rapid Equipping Force (REF). Such innovative solutions include a variety of robotic systems and other technologies used in high-risk searches, technologies to counter IEDs, and extensive improvements in the armor protection of armored and light-skinned vehicles. Typically, the REF cycle is measured in weeks, sometimes days, from field commanders articulating a requirement to the Army providing a solution.

The accelerated fielding of selected capabilities through a spiral process will also include continued development and fielding of new capabilities associated with mature systems in the acquisition process. This includes fielding of additional SBCTs; the RFI to equip Soldiers with increased lethality, force protection, survivability, and squad communications; fielding of systems to retain and improve situational dominance through comprehensive and joint-interoperable command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) architectures—Warfighter Information Network (WIN-T), the Joint Tactical Radio System (JTRS), Distributed Common Ground System-Army (DCGS-A), and Aerial Common Sensor (ACS); fielding of the Surface Launched Advanced Medium-Range Air-to-Air Missile (SLAMRAAM) and Patriot/Medium Extended Air Defense System (MEADS) to augment cruise missile defense; fielding digital battle command capabilities through systems such as the Force XXI Battle Command, Brigade and Below (FBCB2); accelerating crew protection and Aircraft Survivability Equipment (ASE) initiatives and adding an additional 800 helicopters as well as accelerating UAVs.

Aviation Transformation

The Army is also transforming its aviation forces to become a modular, capabilities based maneuver arm that is optimized to operate within the context of joint operations. The Army aviation transformation strategy corrects a previous imbalance between capability requirements and modernization plans. This transformation is not without cost. To fund and accelerate comprehensive transformation of the existing aviation fleet, the Army cancelled the Comanche program. As a result of Comanche cancellation, new aircraft programs were initiated that will build over 800 aircraft—the Armed Reconnaissance Helicopter, the Light Utility Helicopter, the Future Cargo Aircraft and additional Black Hawks and Chinooks.

Intelligence Transformation

Finally, ongoing Army intelligence transformation is enabling the “fight for knowledge” for use by Current Force units. The Army continues significant institutional and cultural changes in four key areas: implementing the concept “every Soldier is a sensor,” instituting a network-centric enterprise approach to analysis, redesigning and transforming intelligence organizations, and improving the professional development of intelligence Soldiers. The Army’s ultimate goal is to generate the appropriate mix of intelligence capabilities that support full-spectrum operational requirements over extended periods of time.

Over the last 12 months, Army intelligence was challenged to meet all of its wartime requirements while adapting “the way we fight” intelligence as part of an interdependent, joint enterprise. One growth area is the Army’s human intelligence (HUMINT) capabilities to better meet the needs of our tactical commanders in Iraq and Afghanistan. Second,

using spiral development, the Army accelerated fielding of interim DCGS-A capabilities, enabling better analytical capabilities across the entire intelligence community. Third, the Army implemented a network-centric “tactical overwatch” capability that provides dedicated, focused intelligence support to deployed tactical forces from fixed knowledge centers, providing precise, tailored information verses megabits of data. These new capabilities are significantly improving intelligence through the synchronization of advanced collaborative analysis to support combat operations in a full -spectrum environment.

Future Force

Enhanced Capabilities for Tomorrow

The primary goal of Army transformation is the development of the Future Force, which

will be a strategically responsive, precision maneuver force that will achieve dominance across the full range of military land operations in any future conflict as an integral part of a truly Joint Force. Our Future Force is being designed to expand options available to the Joint Force in a wide array of possible scenarios and amidst the frequently changing requirements of the emerging operating environment. The Future Force will be balanced across a mix of light, medium and heavy formations and optimized for strategic versatility—able to perform seamless transitions from peacetime readiness missions to small-scale contingencies to major theater warfare.

The foundation of our Future Force is a maneuver Unit of Action (UA) equipped with the FCS. The FCS concept itself represents a paradigm shift in land combat operations. It is a system of systems whose capabilities exceed the sum of its parts. The FCS has

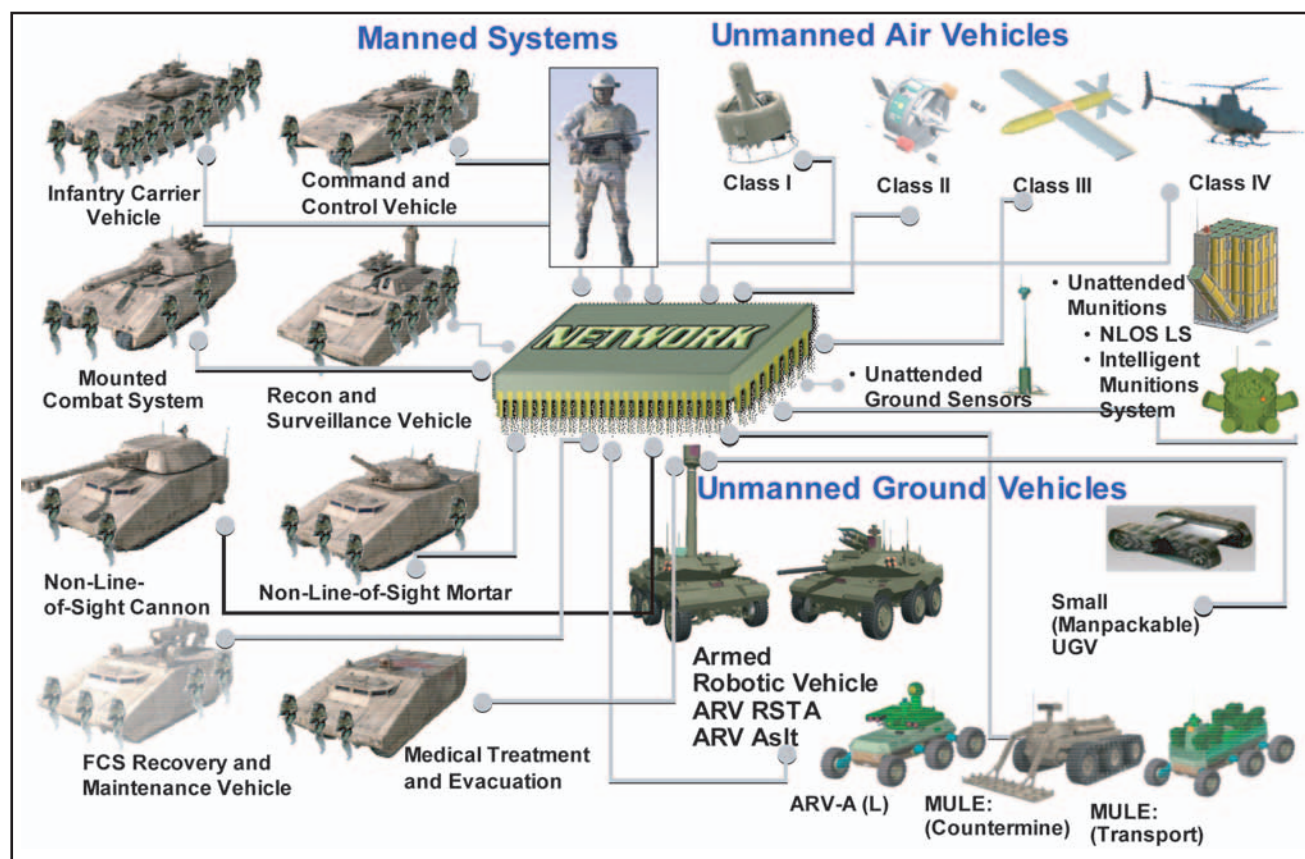


Figure 13. Future Combat Systems

been designed so that each part of the system is networked within the whole to achieve an unprecedented synergy. FCS comprises 18 manned and unmanned platforms that are centered on the Soldier and linked together with a fully integrated network, providing interoperability with joint and coalition forces. FCS will provide our Soldiers greatly enhanced situational awareness, enabling them to see first, understand first, act first and finish decisively.

Although optimized for offensive operations, the FCS-equipped UA will be capable of executing stability and support operations. It will employ a revolutionary networked, battle command architecture to exert command and control over its subordinate units, which are task organized for required missions. The network will facilitate the integration of higher

headquarters and joint capabilities, maximizing the effectiveness of those assets on the battlefield.

Acceleration of Capabilities

The FCS-equipped force represents a capability crucial to the Army's Future Force and the accomplishment of the DOD transformation goals. In July 2004, the Army revised the FCS program strategy in a way that will bring selected crucial capabilities to operational forces faster while maintaining the momentum to develop and field an FCS-equipped UA in 2014. The FCS program is structured now to deliver a number of the most significant technologies to a greater portion of the force earlier than previously anticipated. These technologies include those needed to implement improved network capabilities, to

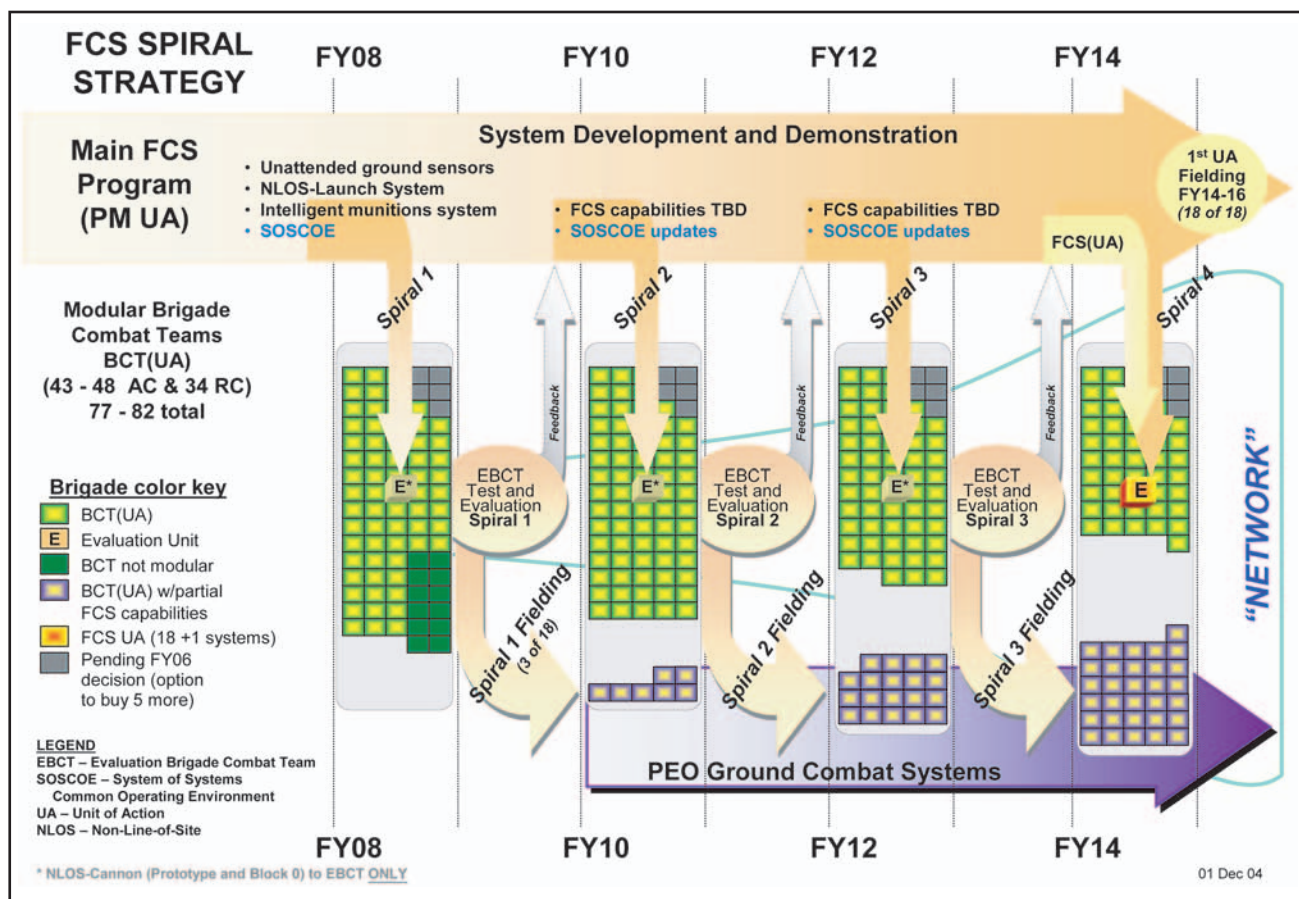


Figure 14. Accelerating Capabilities

enhance battle command and to provide Soldiers with a variety of manned and unmanned ground and air platforms that will increase their survivability and operational reach. This strategy reflects the Army's commitment to reduce risk to the frontline Soldier and demonstrates the Army's desire to adjust the program of record to pressing requirements of the Joint Force. Under the revised program, the first FCS capabilities will emerge in 2008. Also in 2008, the Army will designate an FCS evaluation unit to guide development of the FCS-equipped force.

The adjustments to the FCS program will maintain the focus on FCS-equipped UA development while substantially reducing program risk. The new strategy will give development priority to the network, unattended munitions, unmanned systems and manned ground vehicles (MGVS). The Non-Line-of-Sight Cannon (NLOS-C) will lead MGVS development and deliver prototype systems in 2008, with fielding beginning in 2010. Five previously deferred FCS core systems will also be funded and fielded along with the first

FCS-equipped UA, allowing UA fielding of the complete 18+1+1 core systems in 2014. The initial spiral-out package in 2008 will include development of prototypes and limited production hardware to be used in an Evaluation Brigade Combat Team (E-BCT) for testing and experimentation. This unit will serve as the evaluation unit for all FCS systems and will serve as the means to validate all products within each set of capabilities spiraled out to operational units. This overall iterative development, integration and verification process will demonstrate readiness to progress through the four spiral-out phases of capabilities to the Current Force and ultimately the fielding of the FCS-equipped UA.

By restructuring the FCS program, the Army will garner resources to buy new equipment, including existing items such as add-on armor kits for HMMWVs and individual body armor as well as new transformational systems that can be employed by Current Force units as well as complement the FCS. The end result will be the spiraling of newly developed technology into the hands of Soldiers at a much faster rate than previously envisioned.

2005 ARMY MODERNIZATION PLAN

ARMY MODERNIZATION

Modernization Strategy—Balanced Modernization

Modernization is a continuous process of integrating new DOTMLPF to develop and field capabilities for the Army to provide to the Joint Force in executing the NSS and NDS and all assigned missions. Modernization activities are facilitated and optimized by sound modernization and investment strategies that are specifically designed to implement the Army's transformation process. The modernization and investment strategies also establish common terms of reference for all modernization activities and, very importantly, provide clear priorities and focus for the allocation of resources for equipment expenditures. The overall Army modernization strategy remains focused on providing those capabilities necessary for the Army forces deployed and at war today—the Current Force—that is the foundation of the Army's strategic commitment to the nation, while simultaneously supporting a transformation process to ensure that those capabilities essential for the future are being developed. The investment strategy in support of modernization describes the process used in deciding how to allocate monies across competing priorities in order to obtain the best capability for each dollar spent.

In support of the overall goal of maintaining and improving the readiness of today's Army while also transforming to a more responsive and capable force for the future, the Army has developed a coordinated and comprehensive strategy of integrating all its efforts and pro-

grams across the DOTMLPF toward the goal of equipping and reorganizing forces. This strategy can be described best as one of “balanced modernization,” which seeks to develop and field combat-capable units through an appropriate mix of significant organizational restructuring into more modular units, insertion of new capabilities where and when feasible, selective procurement and fielding of new equipment (modernization); and restoring and preserving readiness of current equipment (reset), including the rebuilding and upgrading of key existing equipment through recapitalization. Overall, Army modernization efforts are placed into two fundamental categories:

- **Modernization**—the development and fielding of improved operational capabilities through a combination of organizational restructuring into modular formations, the insertion of new technologies into existing systems and units, and/or the procurement of new systems with improved capabilities.
- **Reset**—the restoration and/or preservation of the combat readiness of units, returning from or preparing for operational deployments, through the repair or replacement of end items, parts, assemblies and subassemblies that are worn or broken; essential retraining and application of lessons learned; and readjustment of prepositioned stocks of equipment and munitions. Incorporates recapitalization, which is the rebuild and selected upgrade of currently fielded systems.

The Modernization strategy also consists of the following two components, which help define a clearer focus for its implementation:

- Maintaining and enhancing capabilities of the Current Force to meet all strategic and operational requirements. This includes restoring and improving the readiness of units returning from or preparing for operations; the major initiative underway to restructure units into more responsive and capable modular formations; the continued fielding of immediate operational capabilities by organizing and equipping six brigade-sized units outfitted with a family of internetted Stryker combat vehicles and other state-of-the-art, off-the-shelf technologies; and the accelerated effort to insert into existing systems and units,

where feasible, newly developed capabilities derived from emerging technologies.

- S&T efforts to enable timely fielding of the Future Force (in particular, FCS, which will be the foundation of that force) and to identify promising technologies and selected new, mature capabilities that can be fielded to Current Force units through the process of spiral development and insertions.

The specific details of respective plans and programs and the balance within and between these two components as reflected in PB06 is the result of a dynamic and ongoing reassessment of the needs of the nation and the opportunities and resources available. Clearly, the operational environment of a nation and

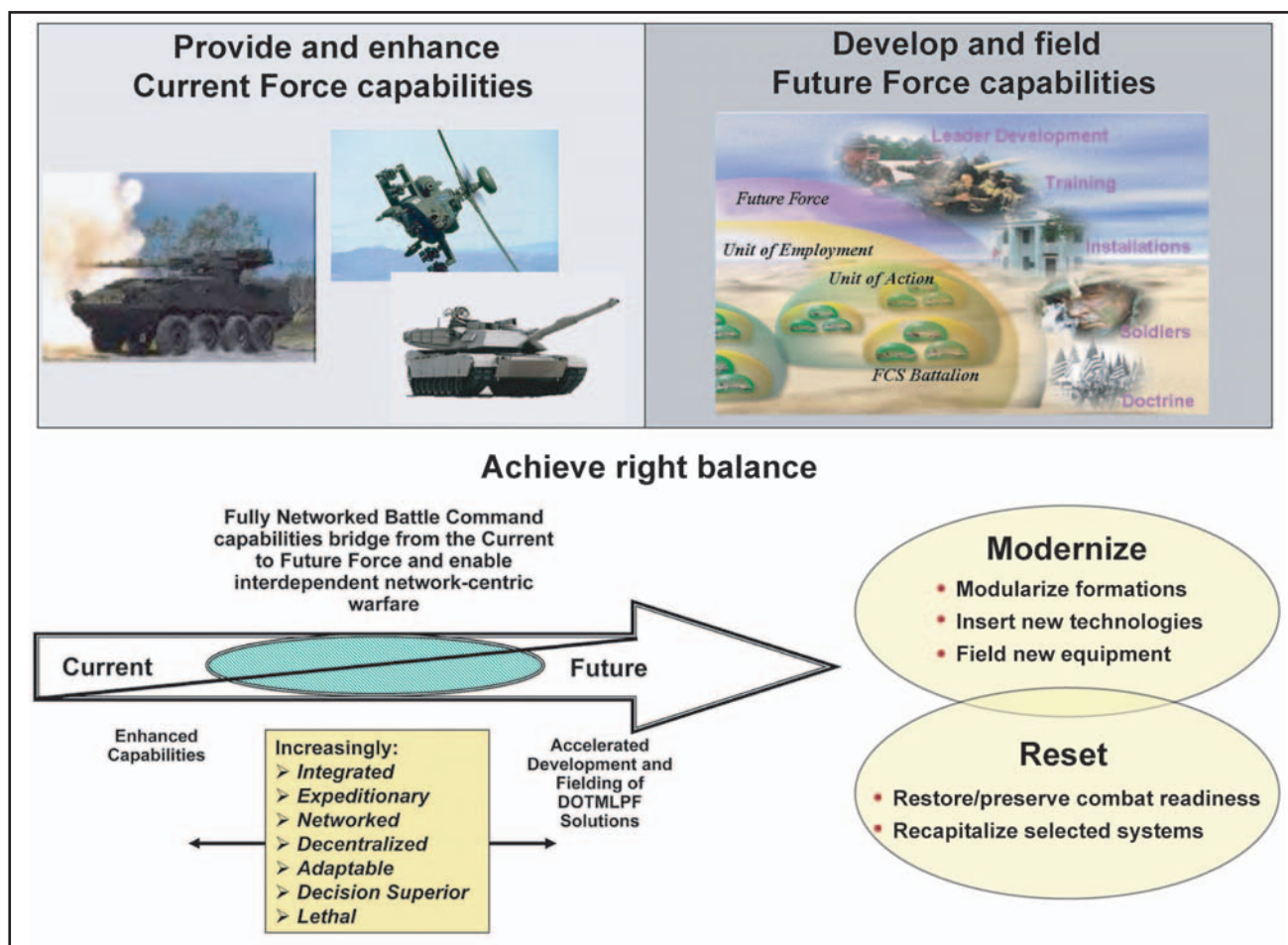


Figure 15. Modernization Strategy

Army at war is of overriding importance in this assessment and has had a direct impact on the changes in the overall modernization strategy, which were foreshadowed by Army initiatives in 2004. Many of these initiatives, as well as other elements contained within PB06, developed as the result of an intensive process of self-examination directed by the Army leadership in an array of focus areas. A number of major changes, namely the move to modular formations, got underway in the first half of 2004, while other changes are being implemented within this budget cycle. The key point is that the Army has adapted its plans and programs within the context of a flexible and overarching strategy of balanced modernization.

Integrating Across the DOTMLPF

The Army's transformation process includes a comprehensive examination of the inter-relationships among doctrine, organizations, training, materiel, leadership and education, personnel, and facilities. As the Army fields new capabilities to the Current Force and evolves into the Future Force, it must optimize investments by ensuring the proper synchronization between DOTMLPF requirements and DOTMLPF solutions.

Transforming the Army has placed new demands on how leaders and Soldiers are managed throughout the force. With over one million soldiers geographically dispersed across seven continents, the Army's personnel community is developing new tools that will ensure the right Soldiers with the right skill sets are assigned to the proper units in a timely manner to ensure combat readiness. Enhanced personnel databases, leveraging web-based technologies, and implementing best business practices are examples of how the Army intends to improve the management of its military and civilian personnel.

The increased operational demands have also required a re-examination of many long-standing personnel and basing practices, with the result that the Army is transitioning to an improved manning system designed to improve unit readiness by increasing stability and predictability for unit commanders, Soldiers and their families. This will place greater emphasis on building and sustaining cohesive, deployable combat-ready units.

Modernizing the Army with new systems and equipment is a critical undertaking that consumes vital and limited resources. Only by ensuring that equipment fielding is integrated and synchronized with total requirements can the Army be assured that resources are being used in a wise and cost-effective manner. The annexes to the *2005 Army Modernization Plan* provide a comprehensive and succinct review of the progress being made in modernizing across the DOTMLPF as the Army continuously transforms itself from the Current to the Future Force.

Modernization Priorities

To achieve readiness of the force over time, the Army prioritizes its investment of limited resources in accordance with DOD guidance reflected in the Strategic Planning Guidance and Joint Programming Guidance, and further defined in *The Army Plan*, and in response to current operational requirements. There are two major categories of investments for the Army—equipping and restructuring the Current Force, and equipping and structuring the Future Force. Lately, there has been a significant shift in prioritization and emphasis as a result of the demands of the global war on terrorism. The first priority for the Army is to successfully pursue this war, which includes the requirement to maintain and improve the readiness of the Current Force. To do this, the Army is focusing on equipping Soldiers,

resetting units returning from and preparing for deployments, and restructuring into modular units that will be available to support operational requirements in the ongoing war. The next and related priority is to strengthen the Army's contributions to joint and combined warfighting capabilities by fielding new systems, inserting new technologies and capabilities into existing systems, fielding the capabilities of the SBCTs, and modernizing into future formations. Army SOF is another force modernization priority because of their unique capabilities and contributions to the Joint Force in the ongoing global war on terrorism. Finally, there is an ongoing focus on transforming the Army into a Future Force with even greater and more relevant capabilities. This transformation is centered on the fielding of FCS and associated systems, though it also includes the corollary effort to identify and spiral forward emerging technologies whenever feasible.

Modernization Enablers

There is an important process that is integral to the execution of the Army's modernization strategy—Unit Set Fielding (USF). In addition to this process, the Army uses an important acquisition policy and process called software blocking to implement USF by integrating and synchronizing system software developments and upgrades. This modernization of the Army's software processes and infrastructure is vital to the success of USF and net-centric warfare. The Army also makes extensive use of modeling and simulation as well as of studies and analyses to help establish priorities and make informed choices throughout the transformation process. Collectively, all of these tools are integral to the success of transformation and an effective and efficient modernization strategy. Finally, an integral enabler as well as foundation of the Army's efforts is the preservation and modernization of the industrial base.

Unit Set Fielding

Under traditional fielding processes, units were modernized by receiving multiple and separate issuances of individual systems throughout the year. This modernization approach, however, rarely provided the unit with a complete and fully integrated operational capability. It also proved to be disruptive to unit training and readiness. The single system/single unit focus of traditional modernization does not support the scope of facility, installation, training complex, and training center modernization required for fielding integrated new capabilities to units.

A more disciplined and structured modernization approach was needed. The Army established the USF process in 2001. This process expanded on the single system modernization policies and procedures by focusing on building unit combat capability packages of equipment. USF integrates and synchronizes resourcing, planning, preparation and fielding of the package to a designated unit during a single modernization window. The designated unit is usually a BCT.

Optimum success in fielding the capability package is gained by integration of all DOT-MLPF activities required to develop, field and support the individual systems that comprise unit sets. This holistic modernization approach is crucial to transforming the Army.

USF is currently being executed to modernize the 172nd Infantry Brigade (SBCT 3) and will be used to field the remaining SBCTs as well as other selected light and heavy forces. The first FCS-equipped UA will use the USF process to field system-of-systems capabilities. USF will, likewise, be an integral component throughout the overall modular force initiative, and will also help implement the spiral application of new technologies into

existing units prior to the fielding of the FCS-equipped UA.

Software Blocking

Software blocking (SWB) is an acquisition policy and disciplined process through which the Army achieves and sustains an integrated system-of-systems (SoS) warfighting capability. *Army Regulation (AR) 70-1, Army Acquisition Policy*, mandates it. SWB is a critical enabler of USF.

SWB as an acquisition process improvement is consistent with the Clinger-Cohen Act of 1996 and DOD 5000. The framework embodied in the SWB policy synchronizes system software developments and upgrades. It is designed to focus the acquisition process on a disciplined approach for achieving interoperability, commonality and synergistic functionality. In conjunction with USF, SWB is a conduit for executing the Army's transformation.

Under SWB, the Army has made a commitment to divest itself of its traditional systems-centric approach to embrace an SoS capability that supports each element of DOTMLPF. This will allow the Army to make smart decisions based on the impact to warfighting capability vice systems. Under the policy, systems include new/upgraded core battlefield systems, trainers, simulators, test and instrumentation, and simulators needed to achieve an integrated capability across all elements of DOTMLPF. SWB applies to all Army systems except those business systems that do not exchange information with tactical command, control, communications and computers (C4) and intelligence, surveillance and reconnaissance (ISR) systems and weapon systems.

SWB represents a necessary evolution along the path of acquisition reform. SWB lowers the artificial barrier between elements within the acquisition process that inhibit our ability to develop, test, train and sustain a synergistic warfighting capability. Through SWB, the acquisition process focuses on a total warfighting capability rather than individual systems.

SWB is a Future Force process that is being implemented to enhance the Current Force operational capability. This means it will take a few iterations before SWB is fully matured. Thus, SWB provides the paradigm through which existing systems will transition from their stovepipe implementations in support of Army objectives to provide enhanced capabilities to the Joint Force.

Joint Venture 2020 requires the insertion of innovations in information technology. SWB provides the vehicle for tuning the Army's acquisition efforts towards developing the interdependent application necessary to achieve the SoS warfighting capability essential to force application, protection, focused logistics, command and control, and battlespace awareness. SWB ensures that the critical C4 and ISR, weapon systems and SoS network infrastructure are matured in a manner that enhances overall operational warfighting capability while at the same time maximizing the operational effectiveness of individual systems. In a resource-constrained environment, priorities are targeted at maximizing total capability. For SWB, this will require a sustainment of resources from requirements through fielding.

Studies and Analysis

Army transformation must successfully structure, organize and equip the Army for the challenges of the 21st century. This is an

ambitious goal, and it will not be achieved without well-analyzed investments in both financial and intellectual terms. Managing the transformation process to produce an Army effective in joint warfighting will require continuous analysis to develop materiel solutions that offer the warfighter the most capability for the least dollars. Robust analyses and studies support timely and correct decisions; increase the correspondence of requirements for strategic, operational and tactical conditions; expand technology trade space; permit the effective utilization of past modernization investments; and ensure effective system integration within the Army's system-of-systems framework. Army analytical efforts will provide significant assistance in the materiel development and selection process by balancing risk between schedule, performance and affordability. These analytical efforts will also identify any specific modernization and

recapitalization initiatives required to sustain Current Force superiority with acceptable risk while the Army focuses resources on enabling the Future Force. The Army's analytical capability ensures we balance cost, technology and warfighting needs in support of the development of an effective modernization program for the Current and Future Forces.

Although the Army uses a variety of analyses and studies to support its decision makers, the tools described below represent the most commonly employed. These include the system-of-systems framework (SSF), warfighting alternative analysis requirements and resources (WA2R2), capabilities needs analysis (CNA), continuous early validation (CEaVa), and value-added analysis (VAA).

The System-of-Systems Framework is an institutionalized process, synchronized

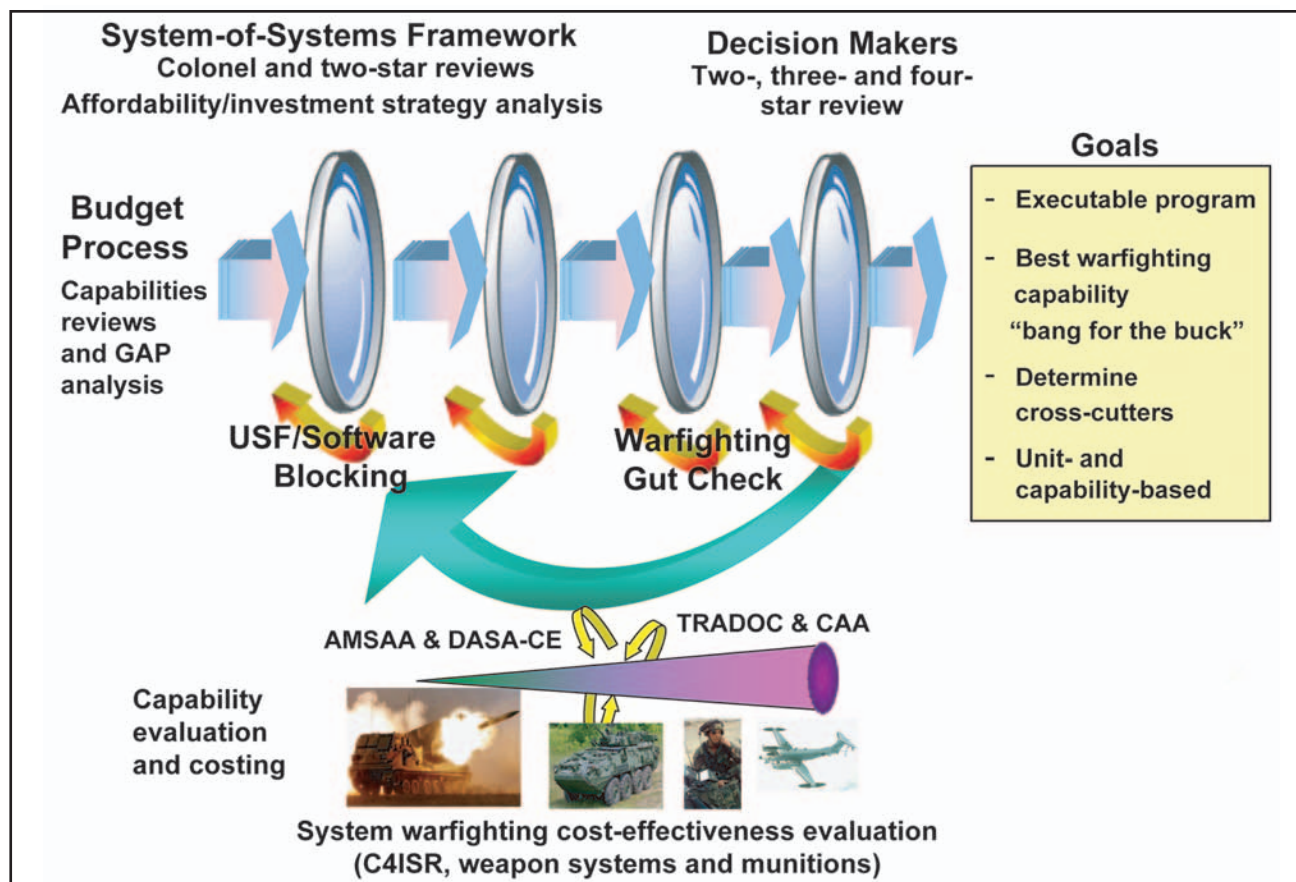


Figure 16. Investment Assessment Process

with the budget planning process, to provide insights to the Army leadership for resource decisions, and to support/refute external studies (Figure 16). The Army conducts analyses and studies to determine the optimum mix of systems that will allow us to build and maintain multifunctional, combat-capable units within an SSF. Analysis allows the Army to balance risk between schedule, performance and affordability within and across joint mission areas (JMA). Objective analysis provides a rigorous, quantitative, holistic approach to system acquisition. The Army uses the results of studies to support the development of systems and to defend Army programs during budget development and defense reviews.

Warfighting Lens Analysis is an analytically based process by which warfighter recommendations on the Army's battlefield capabilities are incorporated into the Army's budget planning process. It prioritizes weapon and training system requirements, and the materiel solutions that best fulfill those requirements, to ensure warfighting overmatch capability within available resources.

Continuous Early Validation is a decision-support system that will aid decision makers and analysts in evaluating acquisition programs. CEaVa gives decision makers timely visibility on the status and issues of a program to permit timely decision. CEaVa will stabilize the problem statement by validating key performance parameters or critical requirements relative to the ever-changing environment. CEaVa makes it clear that the user and developer are solving the right problem. Additionally, it increases the likelihood of producing the correct system on time. CEaVa is the tool, selected by the Deputy Chief of Staff for Programs, G-8, to facilitate the assessment of programs in terms of cost, schedule and technical risk. With CEaVa, the Synchronization Staff Officer will have the ability to track

policies, concepts and requirements for an individual system throughout the program life.

Value-Added Analysis provides decision makers an analytical approach for the evaluation and prioritization of competing alternatives to support the development of a balanced and effective Army RDA program. The study purpose is to identify and analyze marginal costs and benefits of weapon systems and develop feasible, affordable modernization investment strategies in support of Army program planning. The objectives are to produce investment strategies for major weapon systems that maximize force effectiveness subject to constraints on budget, force structure, and production capabilities and to develop a quick-reaction analysis tool to address modernization questions during program execution.

Modeling and Simulation

Simulation and Modeling for Acquisition, Requirements and Training (SMART) is the process for effective and efficient application of modeling and simulation (M&S) within Army programs. The Army uses SMART to capitalize on M&S tools and technologies to address the end-to-end system requirements, from concept development through total cost of ownership. SMART is accomplished through the collaborative efforts of the acquisition, advanced concepts and requirements, training and operations communities.

Acquisition. Technologies must be advanced that will enable the embedding of total technology development and materiel acquisition process, from cradle to grave, in a system of networked synthetic environments that can be seamlessly linked with each other and other domains. This includes technological developments, concept formulation and

evaluation, operational test and evaluation, logistics support assessment, cost estimation, performance and cost trade-offs, scheduling, cost and progress monitoring, and program management.

Requirements and Concepts. M&S will help modernize the force faster by providing technology to empower Army leadership to visualize the future, assess the needs of a transforming force, optimize system design while reducing development risks, and train effectively for a wide spectrum of operations.

Advances in M&S technologies will foster the realistic simulation of unit structure, employment and tactics, dynamics, and performance in a combined arms environment with an increased level of detail, fidelity and statistical accuracy specified by analysis and concept definition.

Training. Army M&S support of the Future Force combined arms training must provide technologies that substantially expand the use of simulators and simulations to train the Soldier in a seamless synthetic environment. Providing digital training to the Future Force will also require continued improvement in fidelity of training systems, including maturing of live-virtual-constructive (LVC) integration environments. Actively pursuing embedded training will give the Army both a built-in mission rehearsal capability and a way to maintain perishable skills for deployed warfighters.

Combat readiness is enhanced through training and mission rehearsals using constructive and virtual simulators and simulations. The integration of live and synthetic environment provides the foundation for the adaptable Joint National Training Capability (JNTC). Through joint exercises and experimentation,

the Army will leverage the JNTC environment to test new concepts, doctrine, tactics and operations.

Battle Command. M&S tools and technologies that provide faster-than-real-time, interactive, predictive, continuous running simulations in support of dynamic automated planning and execution control systems must be advanced.

Simulation-aided mission rehearsal requires the same technologies and databases as mission planning. Technologies are being developed to support implementation of materiel embedded training and mission rehearsal where individual units and their aggregates are fully immersed in synthetic environments with horizontal and vertical synchronization throughout the operational forces.

Geospatial. Investments in data standards, common geospatial terrain, collaborative environments, space representations, test environments, command and control, and urban combat representations are essential. Investments in these areas will enhance Soldier training and combat preparation by providing simulation and training systems integrated directly into operational systems. Geospatial investments also support course-of-action analyses and rapid decision making, and prepare Soldiers to fight in unfamiliar, fast-paced, dynamic environments.

Testing and Evaluation (T&E) of the design and performance of components, subsystems, and systems are an integral part of the materiel acquisition process.

The test community is a vital part of the SMART acquisition process, providing a level of verification, validation and accreditation (VV&A) necessary to ensure the evolving simulations are adequate to support testing. It is recognized that M&S and the mathematics

and science associated with it is not robust enough to completely replace all hardware-based testing for every system.

Payoff. M&S reduces the time and resources required for the acquisition and prototyping, production and logistics, training and readiness of military systems and operations. M&S provides responsive feedback for requirements definition and analysis, design synthesis and system verification. M&S also enables cost analysis, enhances system tests and evaluation, and facilitates cost effective experimentation to gain insights into system capabilities.

Expected payoffs of M&S investments are the development of tools and techniques for rapid force modernization, which will effectively prepare Soldiers and units for combat and will provide technology for a seamless integrated LVC simulation in a JIM environment.

Industrial Base Modernization

A modern industrial base is essential to the overall success of the Army's transformation and modernization efforts. The Army is undergoing the largest and most comprehensive transformation in Army history. It will result in an Army that is more lethal, versatile, agile, survivable, maneuverable and sustainable while incorporating an increasing number of advanced technologies. To provide the required sustainment and operational readiness for the transformed Army, it is necessary to transform the Army industrial base as well.

The Army industrial base of the 21st century will consist of a complementary and synergistic mix of private sector and government capabilities. It will be multipurpose and multi-use, and structured to provide the required capabilities and capacity. These capabilities must be maintained in modern operating condition to ensure

quality and enhance productivity, as well as encourage public-private partnerships to include investment opportunities for modernization.

By leveraging the private sector's capabilities to the maximum extent practicable and economical, the Army will focus its resources on those unique manufacturing processes and products required to meet peacetime, emergency, reconstitution and replenishment responsibilities in support of the NSS. Given the Army's national defense mission, its Title 10 responsibilities to support other Services, and the unique characteristics of some of its equipment and the demand for readily available replacements, it is necessary to maintain certain industrial capabilities within the Army. The challenge is to determine what is the most efficient organic mobilization capability and capacity that the Army will require to sustain the warfighter while addressing and implementing the full spectrum of technologies from legacy to new systems.

Today's Army organic industrial base consists of facilities that produce ammunition, store munitions, manufacture components and maintain equipment. The facilities, located throughout the continental United States, consist of government-owned, government operated (GOGO) and government-owned, contractor-operated (GOCO) facilities. The Army owns all of these facilities; however, Army employees manage and operate the GOGOs and private companies provide the personnel to manage and operate the GOCOs.

The U.S. Army requires a robust production and maintenance capability to support its forces of the 21st century. That capability relies on a seamless integration of public and private sector competencies, achieved through an increased reliance on public-private partnering on new and current weapon

systems. To support its portion of the partnership, the Army must continue improve its world-class organic production, maintenance, repair and overhaul operations to ensure they are “right-sized” and technologically capable to support operational requirements during peace and war. This requires an adequate investment for the resolution of problems that were created by reduced infrastructure investments during the past decade, establishing a sustained level of investment that is commensurate with private industry, investment in the Army’s organic workforce to maintain appropriate skill levels and increase competencies in the high-technology environment, and application of best business practices.

Investment Strategy

For the Army’s investment strategy for PB06, the highest priority relates to those actions necessary to maintain essential operational readiness to fight and win the ongoing war on terrorism. To do this, the overall Army budget plan focuses on providing the Army’s strategic objectives by building capable and modular forces, and a more ready and relevant Army, and providing a more stable and predictable lifestyle. To accomplish this, the Army is prepared to make adjustments in existing lower priority programs to cover some of the costs of this effort. While significant reductions amounting to approximately \$15 billion for the FYDP have been made, the Army still depends to a large degree on congressional support in the form of supplemental appropriations to serve as bridging vehicles for supporting these operational requirements without jeopardizing the essential elements of the ongoing Army effort to fulfill DOD priorities, including transformation.

As part of its efforts to meet the current needs of combatant commanders, the Army is accelerating transformation into a more capable

and modular force. Previous time lines for fielding these new capabilities have been advanced, and the conversion to modular formations was initiated in 2004 in response to the urgencies of the current strategic environment and associated operational requirements.

Overall, the Army’s plan focuses on three areas in order to support the requirements of the combatant commanders:

- Building a more capable and modular Army by refocusing S&T and procurement to spiral promising technologies into the Current Force, and by a modular conversion of units to create more responsive, standardized and flexible formations that are better able to support new operational requirements.
- Building a more relevant and ready Army by rebalancing the AC and RC, restationing through global posture initiatives, supporting global operations, developing a joint interdependent logistics system, and the changing combat skills training strategy.
- Building a more stable and predictable lifestyle by force stabilization initiatives that will reduce the effects of high deployment and operational tempos and will enhance the quality of life for Soldiers and their families.

The Current Force

The Army today—our Current Force—is fully committed with an over 300,000 Soldiers deployed in 120 countries during the past year. This force includes existing heavy and light divisions and separate brigades, newly fielded SBCTs, and Special Operations Forces. In 2004, the Army initiated a significant restructuring effort to convert existing units into more modular formations, with the ultimate result

being the creation of 10 additional BCTs that will increase the flexibility and responsiveness of the Current Force while also posturing itself for future transformation efforts. This force is the guarantor of today's readiness and the Army's contribution to the ongoing operations in the global war on terrorism. Because of the urgent requirements of these operations, the Army has placed a high priority on efforts to ensure the readiness of units returning from or preparing for contingency missions. Also, as a result of the immediate demands of these missions, the Army has re-examined its investment strategy and has accelerated the application of new emerging capabilities into the Current Force as soon as feasible. The combination of initiatives to restore readiness, convert units into more modular formations, and insert new capabilities are designed to make Army forces more ready and relevant for today's missions and supportive of changes that will further increase capabilities for tomorrow.

The new SBCTs represent a recent and significant improvement to the Current Force. They have already demonstrated their tremendous versatility and survivability in demanding operational missions in Iraq. The second of these new brigades was fielded and deployed in Iraq in 2004, and the third unit will be operationally ready in 2005. Currently approved plans call for a total of six of these responsive and uniquely capable units to be fielded by 2008, with one deployed to Europe by 2007 to represent a new and more strategically agile force in that theater as part of a global reposturing initiative. Additionally, in response to recent congressional support and authorization, the Army is developing and will submit plans for the fielding and stationing of a seventh SBCT.

Setting the Force

As previously mentioned, the Army is involved in implementing a critical reset process to restore and improve the readiness of units returning from and preparing for operational deployments. This comprehensive process combines a variety of efforts that will repair and reconstitute units, simultaneously restructure them into modular formations, and recapitalize and modernize them wherever possible in order to improve overall capabilities. Reset will continue to be key to future readiness as the Army executes its responsibilities as part of the Joint Force.

Related to reset and as part of simultaneous efforts to improve the acquisition and fielding process and ensure that Soldiers have the latest available equipment, the Army has implemented the Rapid Fielding Initiative (RFI) to outfit Soldiers with improved combat gear as they deploy for missions. This process outfitted over 100,000 Soldiers by the end of 2004 with improved combat gear, and by the end of FY07 almost all Soldiers in AC and RC BCTs will have received enhanced capabilities from a basic RFI kit containing about 50 essential items. This initiative dramatically improves the lethality, survivability and endurance for the Soldier—the Army's centerpiece.

In addition to RFI, the Army has also instituted an REF process to provide commercial off-the-shelf or near-term developmental items to forces preparing for or engaged in operational missions. This process provides materiel not available through the traditional supply system, but items that are critical to an immediate requirement. This has included items such as armored kits for vehicles and systems for searching dangerous areas.

A final equipping initiative that has been integrated where possible into the reset process

is the Army's ongoing recapitalization effort. Recapitalization, which is the rebuild and selected upgrade of currently fielded systems to ensure their operational readiness, aims at improving unit effectiveness and warfighting capability, extending service life, and reducing operating and support costs. Because the need to recapitalize systems is significant and exceeds available resources, the Army has focused on selected units and prioritized systems.

Inserting New Technologies and Capabilities

The Army is making a concerted effort to identify those emerging technologies that have the greatest promise for early incorporation into the Current Force. The goal is to exploit opportunities that will enable us to put future technology into the hands of Soldiers today. This will increase readiness and effectiveness of our Army at war today as well as create a Current Force that will serve as a technological bridge to the Future Force.

The ongoing modular conversion of Army units is a critical means of making units more efficient and far more capable of exploiting the range of joint capabilities. These units will be more responsive, standardized and flexible in the Current Force, but they also will be essential vehicles for incorporating the new technologies and capabilities that can be applied earlier from the developmental work underway as part of transformation to a Future Force.

New capabilities will be inserted into the modular BCTs through four planned spirals of technology that will occur between FY08 and FY14. In addition to the accelerated fielding of selected capabilities through this spiral process, there will be continued development and fielding of new capabilities associated

with systems already well along in the acquisition process.

The Future Force

The Army is developing a Future Force that will achieve the capabilities necessary to be a strategically responsive, precision maneuver force that is dominant across the range of military operations. This force is not a finite end state as much as a path of continuous change for the future. The Future Force will be equipped with significantly enhanced systems centered on the FCS family of systems and its complementary, key enabling systems such as the Armed Reconnaissance Helicopter (ARH), WIN-T, JTRS and DCGS-A. The Future Force will be designed to operate as part of a joint team, and its joint operational architecture will provide an enhanced C4ISR for dominant situational awareness and precision strike. Through the spiral development process, emerging capabilities from Future Force programs will be inserted into selected components of the Current Force, thus providing force modernization with minimum impact on operational readiness.

Science and Technology Efforts and Priorities

In keeping with the Army's overall transformation strategy, the Army's S&T investment strategy is simultaneously pursuing technologies that have the high potential to enhance the Current Force and enable the Future Force. The strategy of looking to the future while simultaneously providing advanced technologies to the Current Force requires dynamic, agile technology portfolio planning and management. To that end, S&T investments are being focused to accelerate and mature technologies that will enable Future Force (i.e., FCS) capabilities and to create op-

opportunities for transitioning these technologies to the Current Force as soon as possible.

The FCS-enabling technologies for Increment I and technologies for spiral insertions to the FCS program represent the Army's largest single S&T investment during the FY06 FYDP—approximately 30 percent of the S&T program. This approach is strategically aligned with the Army's future operational capability needs and maintains an awareness of the lessons learned from current operations. Fundamentally, the Army S&T program is seeking to provide solutions that enable faster, lighter and smarter systems.

While FCS has begun the Systems Development And Demonstration (SDD) phase of acquisition to begin initial fielding in 2014 with the first UA, the S&T community continues to develop technologies for spiral insertions to realize Increment 1 capabilities. Key FCS capabilities being addressed by current technology investments include:

- Networked battle command systems to enable shared situational awareness and improved decision making
- Low-cost, multispectral sensors to find and identify the enemy
- Enhanced survivability through improved sensors to locate and identify threats, signature management, and active and passive protection systems
- Semiautonomous and autonomous unmanned air and ground systems
- Networked lethality through standoff precision missiles and gun-launched munitions

The Army's diverse S&T portfolio invests in a range of technologies to provide solutions to enduring needs across a spectrum of desired capabilities that will enable FCS, Soldiers and

other systems in the Unit of Employment and UA. Some of these additional technologies are listed below:

- Mobile, secure, self-organizing networks for seamless joint operations
- Technologies to provide individual Soldiers with platform-like lethality and survivability
- Ultra-lightweight materials and nanotechnology to design materiel properties for optimum Soldier applications
- Lightweight multimission equipment packages for unmanned systems
- Immersive simulations and virtual environment technologies for a Soldier, leader and unit mission rehearsal and training
- Area protection from rockets, artillery and mortars
- Countermining technology for high operational tempo (OPTEMPO) combat and survivability in stability operations
- Advanced weapons including high-power microwave, high-power lasers and electromagnetic guns
- Embedded prognostics and diagnostics to reduce logistical demands for materiel systems
- Lightweight, long-endurance electric power generation and storage
- Biotechnology to obtain unprecedented performance and materials
- Medical technology for self diagnosing and treating "uniform" ensembles
- Physiological status reporting and medical response technologies

The S&T investments are funded in three budget activities (BA) that are characterized

by the three different time frames of output products based upon maturity of the technology. These BAs are basic research (BA6.1), applied research (BA6.2) and advanced technology development (BA6.3). Although not a mandatory progression, most technology products begin as basic research, then are matured to initial application as applied research, and demonstrated during advanced technology demonstration to show readiness for the SDD phase of acquisition.

The near-term focus over the next two to five years is on the development (maturation) and demonstration of technologies in a relevant environment for spiral insertions into the FCS SDD program. FCS and non-FCS specific technologies are being pursued for the Current Force and the Future Force to enable networked operations, increased survivability, more energetic lethality, and reduced logistics demands through technologies such as hybrid propulsion and compact portable power sources.

In the midterm, from five to ten years, the S&T investments are seeking to mature technologies for later demonstration that can enable a full-spectrum FCS and other Future Force systems capabilities. These technologies include:

- Unmanned ground and air systems
- Solid state lasers
- Electromagnetic gun
- Multipurpose gun munitions
- High-powered microwave (nonlethal)

In the far term, beyond ten years, current Army research investments will enable potentially paradigm-shifting capabilities in joint land combat forces such as:

- Completely autonomous ground and air vehicles
- Training and simulation environments with “holodeck” potential
- Compact power sources that are 20 times smaller and lighter than current sources
- Smart structures and materials-by-design—products of research in nanoscience and biotechnology

Balancing Risk—PB06 Investment Strategy

Prior to the events of 11 September 2001, the Army assumed greater risk in the Current Force as it built toward the Future Force. Due to the operational experiences of Operations Enduring and Iraqi Freedom, the Army is shifting resources to reduce operational risk and improve the capabilities of the Current Force. The imperative now lies in finding balance between sustained warfighting requirements and transforming to meet future challenges. Figure 17 depicts the changes.

Our Army remains committed to developing the Future Force capabilities required to wage warfare in the next decade. As operations in Iraq and Afghanistan illustrate, our technological and training superiority is a critical ingredient to our success on the battlefield and must be maintained into the future. The FY06-11 Plan, while recognizing the need for investment, must first respond to the immediate threat presented to our Soldiers. Our Army will focus development efforts on identifying promising technologies and “spiraling” these enhanced capabilities into the Current Force so that our Soldiers continue to have technological overmatch. As capabilities are spiraled into the Current Force, the Current Force will inform the Future Force. Just as our Soldiers are adapting to meet the

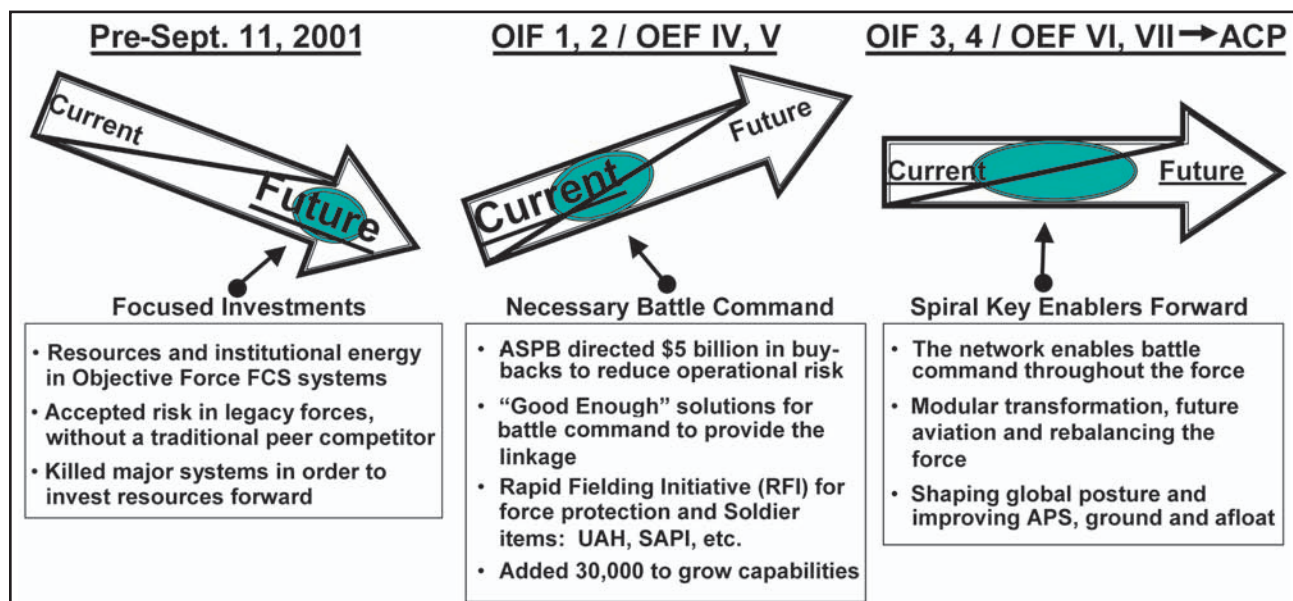


Figure 17. Programming Balance

challenges of the contemporary operating environment, the Army is also changing how innovative technologies are being developed and introduced.

The aggressive and vital reset process underway is primarily dependent on supplemental funding for its successful implementation. Reset and the associated modular force initiative have been supported by the Office of the Secretary of Defense (OSD) and Congress largely supplemental funding, although with some budgetary funding. For FY06, it is anticipated that supplemental and programmed funding will cover the costs of both modular conversions and operation-related reset expenses.

For the continuation and completion of the fielding of six Stryker brigades, the Army will devote \$3.1 billion during the FYDP. Additional plans are also being developed, based on increased congressional support in 2004, for the potential fielding of a seventh SBCT. To support the ongoing recapitalization program, which will be coordinated as much as possible with the reset process, the Army has allocated \$15 billion during the planning period.

To support the requirements associated with creating a more capable and modular force, the Army has made \$15 billion adjustments in its programs and systems. These funds were diverted to augment readiness of the Current Force and to enhance its capabilities through the procurement of equipment.

In the S&T program, the Army has restructured in order to focus on technologies having high potential for enabling key capabilities as soon as possible, including those which can be applied in current conflicts. As a result of this restructure, the Army was unable to maintain S&T at previous PB05 levels. A total of \$10.9 billion, however, is still allocated within PB06 for the FYDP for S&T to develop the FCS, address high-priority Future Force capability gaps and enable spiral technology to the Current Force. New initiatives focus on force protection, network-centric systems, and basic research in network science and non-lethal technologies. Investment is increased for the A-160 UAV development, IED countermeasures and the electromagnetic gun technology demonstration.

The restructuring of the FCS program will allow \$9 billion to be devoted to the procurement

of new equipment that can be employed by Current Force units as well as by the evolving FCS-equipped units. Thus, the Army is maintaining an appropriate priority on the continued

development of future capabilities and systems, while at the same time adjusting programs to permit a more rapid improvement of current capabilities and support to Soldiers today.

2005 ARMY MODERNIZATION PLAN

SUMMARY AND CONCLUSION

Our Army today is both at war and engaged in a process of change to transform itself into a force with increased readiness and relevance for the joint requirements of the present and future. Transformation is engrained in the Army's plans and operations and has also been adapted to take into account the urgent demands on today's forces. As a result of initiatives begun last year after a thorough self-examination using functional focus areas, the Army has embarked on a number of significant initiatives to readjust plans and programs to meet increased demands. New capabilities such as the Stryker brigades have already been fielded and used to support current operations. Aggressive actions are likewise underway in the reset program to restore readiness and improve capabilities of units returning from and preparing for deployments. Major restructuring efforts have also commenced to convert all Army units into modular formations that are better equipped and more ready to support the Joint Force in future operational missions. The ultimate objective is to field campaign-quality Army forces that are better equipped, trained, manned and structured to provide the joint and expeditionary land forces required to support the nation's defense strategy.

The *2005 Army Modernization Plan* reviews the Army's strategy of building and fielding combat-capable units that will preserve and enhance the capabilities of the Current Force and develop more improved capabilities for the evolving Future Force. Accelerated efforts are underway to incorporate emerging technologies into existing systems and units as soon as practical to provide the best

support possible to our Soldiers. Results of transformation efforts have already been seen in the form of new formations and new equipment employed in Iraq, and further progress will be increasingly apparent in the coming years.

The *2005 Army Modernization Plan* describes the overall balanced modernization strategy as well as the key enablers that will facilitate the building of combat-capable units. While the materiel aspects of modernizing and transforming the Army are a central theme of the *2005 Army Modernization Plan*, it is essential that modernization be fully coordinated, balanced and synchronized across the critical requirements of doctrine, organizations, training, leadership and education, personnel, and facilities. Respective annexes are devoted to a specific discussion of these essential areas. Above all else, people remain central to the success of the Army's transformation, and Soldiers, imbued with a genuine Warrior Ethos, are the true credentials of the Army—today and tomorrow—just as they have been throughout our nation's history.

With the strong and indispensable support of Congress and OSD, the Army has made considerable progress in the evolving transformation process. Previously, the Army made difficult choices and adjustments such as canceling the Comanche helicopter to fulfill more immediate operational requirements. With more than 300,000 Soldiers deployed and engaged overseas, it has been imperative to re-examine the balance of risks between Current and Future Forces. In this year's budget, PB06, the Army has made

further decisions to divest and restructure existing programs in the amount of \$15 billion in order to apply those funds to enhance the readiness and capabilities of current Army forces. Congressional supplemental funding in FY04 and FY05 has also been critical in bridging the gap between support for current and future readiness and continued support will be imperative.

The *2005 Army Modernization Plan* is submitted in conjunction with the release to Congress of PB06, which supports an Army at war and operationally engaged while also continuing to support significant transformation into a more capable and modular force. Specifically, the Army's portion of PB06 submission provides funding for:

- Maintaining essential emphasis on improving the readiness of the Current Force by devoting over \$15 billion in the program to the recapitalization of systems in this force and by supporting efforts to restore full readiness for future missions for units involved in recent operations.
- Programming over \$13 billion toward the modular conversions of 77 BCTs. This funding, in conjunction with the Army's supplemental strategy and the recent DOD commitment to add \$5 billion per year from FY07-11 to support conversion requirements, will permit completion of the Army's modular transformation by FY10.
- Providing \$3.1 billion to complete funding of six SBCTs by 2008 and submitting fielding and stationing plans for the potential fielding of a seventh SBCT.
- Accelerating the development and spiraling forward of transformational technologies into Current Force units by restructuring the FCS program and freeing up approximately \$9 billion for this purpose.

- Focusing S&T investment of approximately \$10.9 billion over the FYDP in the development of capabilities primarily applicable to the Future Force, though with potential application to Current Force units and systems.

The Army's priority is focused on sustaining our global commitments by preserving and improving the operational readiness of the Current Force and effectively supporting our Soldiers deployed and engaged in the global war on terrorism. In conjunction with this focus, the Army has begun to institutionalize a fundamental restructuring into more modular formations that will be increasingly responsive and more capable of executing all missions assigned the Joint Force today and in the future. This latter effort is a fundamental part of the Army's continuing transformation into a more ready and relevant force. This transformation is also built upon the significant development and application of new technologies, including the increased efforts to spiral these emerging technologies into existing systems as soon as feasible. These overall modernization efforts include a dynamic assessment of associated risks in order to maintain the correct balance between current and future readiness and requirements.

Much progress has already been made, thanks to the considerable support from Congress and the DOD in the form of annual and supplemental appropriations. Continued and increased funding will be required, however, and the Army is fully committed and determined to succeed in both the ongoing global war on terrorism and in the evolution of an improved force capable of meeting the land power needs of the Joint Force. Our nation and our Soldiers demand and deserve nothing less than our full efforts, and we can and must succeed.

ANNEX A: DOCTRINE

Doctrine and the Army

Doctrine is fundamental principles by which military forces or elements guide their actions in support of national objectives. It is authoritative but requires judgment in application. It provides the concise expression of how Army forces contribute to unified action in campaigns, major operations, battles and engagements. While Army doctrine complements joint doctrine, it also describes the Army's approach and contributions to full-spectrum operations on land. Where conflicts between Army and joint doctrine arise, joint doctrine takes precedence.

Doctrine touches all aspects of the Army. It facilitates communication among Soldiers no matter where they serve, contributes to a shared professional culture, and serves as the basis for curricula in the Army education system. Army doctrine provides a common language and a common understanding of how Army forces conduct operations. Army doctrine consists of principles, terms, and tactics, techniques and procedures (TTP). It is rooted in time-tested principles but is forward-looking and adaptable to changing technologies, threats and missions. Army doctrine is detailed enough to guide operations, yet flexible enough to allow commanders to exercise initiative when dealing with specific tactical and operational situations. To be useful, doctrine must be well-known, accurate, acceptable and commonly understood.

As the Army's capstone operations manual, *Field Manual (FM) 3-0, Operations*, provides the principles for conducting operations. It describes the Army's operational-level role

of linking tactical operations to strategic aims and how Army forces conduct operations in unified action.

Concepts to Doctrine

The Army capstone concept is the warfighting concept that provides a holistic, macro-level description of the future Army and how it will conduct operations. It is the foundation for a comprehensive Future Force body of work, which includes detailed Army operating, functional and enabling subordinate concepts that describe the full range of interdependent operations, functions and related future Army capabilities from a variety of perspectives and levels. The capstone concept describes future Army capabilities and the contributions these capabilities bring to the Joint Force. It describes capabilities for global power projection and employment of U.S. forces across the full spectrum of military operations conducted at strategic, operational and tactical levels in joint, multi-Service and multinational operations, as well as actions involving, or in support of, other agencies. The development of the concept begins with the study and analyses of a wide range of data, to include policy and strategy, Army missions, historical perspectives, operational environments, technological forecasts, assumptions and current Army capabilities.

While Army doctrine may emerge from validated Army concepts, Army concepts themselves are developed in parallel and in collaboration with joint concept developers. The 2004 National Military Strategy (NMS) and a series of evolving joint concepts, including

the Joint Operations Concepts (JOpsC), Joint Operating Concepts (JOCs), Joint Functional Concept (JFC) and Joint Integrating Concepts (JIC), are key elements in the logic trail from concepts to capabilities, which may include doctrine. As a new concept begins to mature, it is analyzed through the Joint Capabilities Integration and Development System (JCIDS) to determine capability gaps and capability redundancies, assess the risks and priorities of the gaps, and identify an approach in relation to doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). These documents provide focus for experimentation programs and science and technology efforts. Once an initial draft of a concept is complete, it is analyzed through a process of experimentation and testing. The U.S. Army Transformation Concept Development and Experimentation Campaign Plan (AT-CDEP) guides these evaluations, and it may be done in several ways, to include studies by the Training and Doctrine Command (TRADOC) Analysis Center, analyses at the battle labs, or in a series of wargames. Once approved, an Army concept is published as a 525-series TRADOC pamphlet and becomes the baseline document for the development of Army Future Force capabilities by means of DOTMLPF solution sets. Approved doctrine ensures that the leadership, Soldiers and collective training are all oriented toward fielding an Army with a common operational language, common operational focus and common TTP.

Sustaining a Doctrine-Based Army

The Army's doctrine of the future must enable core warfighting capabilities while increasing its strategic responsiveness and dominance over an expanded range of mission environments and threats. Our doctrine must encourage the relentless pursuit of the initiative in all military operations. It must address the

importance that the common operational picture plays in joint simultaneous engagement in depth, shaping the close fight and winning decisively. Doctrine must fully address how to effectively integrate and balance the application of information-enabled precision effects and maneuver into every mission area along the spectrum of conflict.

Doctrine must sustain an Army that will be a hybrid force, transforming from the Current to the Future Force, and embrace both. Organizations, training systems and materiel are being replaced by new organizations with different training systems and equipment. Army doctrine must emphasize the distributed, simultaneous, network-enabled and interdependent joint noncontiguous operations throughout the battlespace. These nonlinear operations are described in the 2004 NMS and the revised *Joint Publication (JP) 3-0, Joint Operations*, and were experienced in recent operations in Afghanistan and Iraq. Doctrine must also address the complete range of potential tactical- and operational-level missions and operating environments—not only open rolling terrain but also close terrain and the equally challenging complex and urban terrain that are becoming the battlefields of choice for potential adversaries. Most importantly, Army doctrine must be comprehensive and embrace the full spectrum of military operations, providing a conceptual basis for the rapid transitions—without loss of momentum—among the four types of Army operations: offensive, defensive, stability and support.

In the near term, TRADOC will conduct an integrated rewrite of key Army doctrine to address full-spectrum operations in the joint, interagency and multinational environments. TRADOC will focus on joint doctrine and warfighting concepts (approved and validated) that maximize maneuver, precision joint fires and survivability. Additionally, it will fully

participate in the continued development of stability operations, irregular warfare, special operations/conventional warfare integration, information operations and homeland defense doctrine. The U.S. Army Special Operations Command has mirrored TRADOC's doctrine transformation process in many respects. The U.S. Army John F. Kennedy Special Warfare Center and School (USAJFKSWCS) and the Army Special Operations Battle Lab are preparing operational and organizational plans that address special forces, Rangers, psychological operations and civil affairs doctrine. The USAJFKSWCS is also modifying existing doctrine to reflect new capabilities and lessons learned from recent operations supporting Operation Enduring Freedom, Operation Iraqi Freedom and the global war on terrorism.

TRADOC continues to ensure that Army doctrine is nested within, rather than simply compatible with, joint and multinational doctrine. These efforts to shape Army doctrine will continue throughout the midterm and far term.

The Army Doctrine Hierarchy

The Army doctrine hierarchy has been changed to match more closely the joint doctrine hierarchy. The Army's warfighting doctrine is now organized in a two-tiered hierarchy that provides a structure for developing and implementing Army doctrinal publications. Tier 1 – Army Doctrine is the highest-level tier and includes our capstone publications *FM 1, The Army*, and *FM 3-0*. Approximately 40 other Tier 1 FMs are keystone publications that offer a broad perspective on Army operations and are instrumental in the proper integration of all other Army doctrine and training publications. Tier 1 doctrine is intended to provide a solid doctrinal basis for all Army operations and, while this level of doctrine changes on a

regular basis, it is not intended to change as rapidly as the Tier 2 manuals. Tier 2 – Doctrine is the second tier that captures the bulk of proponent, lower-level organizational FMs. These FMs are narrower in scope than Tier 1 FMs and address subjects in varying levels of detail, depending on the subject, type of force and echelon. There are currently over 550 Tier 2 FMs providing TTP for specific functions, units and the employment of Soldiers and systems. Tier 2 publications also include numerous reference FMs covering tasks such as providing first aid, physical training and marksmanship.

Warfighting Doctrine Development in Support of Transformation

Army doctrine development has several initiatives underway to support Army transformation and its forces in combat. Army doctrine priorities have been established by the TRADOC commander, setting the course for current and future doctrine efforts. Doctrine priorities include Army input to joint doctrine, specifically *JP 3-0, Doctrine for Joint Operations*. We must ensure that the development of *JP 3-0* accurately reflects the requirements of land-dominate operations. The Army capstone field manuals, *FM 1* and *FM 3-0*, will be revised in parallel with the ongoing revision of *JP 3-0*. The goal is to publish both FMs by 3rd quarter FY06, which will be within six months of *JP 3-0*'s release. Simultaneously, the most important keystone field manuals will also be revised. These high-priority field manuals will be published in two waves. *FM 2-0* (Intelligence), *FM 4-0* (Logistics), *FM 5-0* (Planning), and *FM 6-0* (Command and Control) are scheduled for the 1st quarter FY07. Other high-priority field manuals, including *FM 3-07* (Stability Operations and Support Operations) and *FM 3-13* (Information Operations), will be completed 3rd quarter FY07.

In the near term, approximately 14 FMs are being developed to support the modular Army. For the far term, through the Capabilities Integration and Development System (CIDS)/JCIDS process and supporting DOTMLPF analysis, TRADOC identified a series of doctrinal publications to support experimentation, testing and fielding of the Army's Future Combat Systems-Unit of Action. Using these draft doctrinal publications, TRADOC will begin the collective task analysis to prepare the first unit equipped individuals, crews, small units, company and staff training materials necessary for experimentation, testing and evaluation in support of the FY08 Limited User Test, a test utilizing a limited group of users to test software and/or processes.

A new Army doctrinal publication category, field manual interim (FMI), will speed dissemination of urgently needed new doctrine to the field. FMIs deliver urgently needed doctrine approved by the proponent and authenticated by Headquarters, Department of the Army, without placing it through the standard development process. FMIs usually contain TTPs, but may contain discussions of principles. Proponents prepare FMIs to meet immediate doctrinal needs in cases where issuing a change to an existing FM is inappropriate. FMIs expire after two years, unless superseded by an FM, or rescinded.

Two keystone reference publications, *FM 1-02, Operational Terms and Graphics*, and *FM 7-15, The Army Universal Task List*, are published by electronic means as well as hard copy, and will be near real-time updates as the subjects they cover change. FM 1-02 standardizes Army terminology and symbology, and FM 7-15 standardizes tasks performed by all Army organizations. FM 1-02 will be updated whenever a field manual establishes one or more new terms or changes existing terms. FM 7-15 will be updated as new train-

ing tasks are developed. Changes will be available in two electronic formats, both accessible from Army Knowledge Online (AKO). Separate files for previous changes will be available for download by users working with paper versions.

The Doctrine Literature Master Plan (DLMP) and Modernization

The DLMP is used to manage the life cycle of doctrinal publications. Its primary purpose is to provide a snapshot of the status/readiness of Army doctrinal publications and to forecast resources for doctrine development requirements. It lists all Army, joint, multi-Service and multinational doctrinal publications for which TRADOC and other doctrinal agencies are the proponents and/or primary review authorities/technical review authorities. It includes current publications, new developments, revisions and proposed consolidations. Because doctrine development is decentralized across Army agencies, the DLMP establishes planning standards and consistency, and serves to institutionalize a methodology in determining doctrine resource requirements for the budget and planning years.

Historically, doctrine was viewed as having about a five-year life span with "out-of-cycle" revisions triggered by events such as significant changes in the operational environment. The five-year life span is still used for programming and budgeting purposes. However, proponents are now required to update doctrine (which includes TTP) as soon as it becomes obsolete. Proponents are required to assess their publications every 18 months and record the status in the DLMP. When proponents determine that a publication requires updating, they take the necessary actions to plan/forecast requirements in the DLMP.

Object-Based Publishing (OBP) of Doctrine

Technology and military publishing standards have evolved to allow for a more logical and efficient way to capture, manipulate and exchange doctrine information. Extensible Markup Language (XML) can be used to create doctrine objects/topics that are self-identifying, self-describing and self-assembling. A doctrinal object is a concise and self-contained document structure that can be used stand-alone or combined with other doctrine objects to organize and build information into customized, topically focused products such as field manuals, courseware or more user-centric battle books. This method is called Object-Based Publishing (OBP).

In FY03, TRADOC's Deputy Chief of Staff for Doctrine, Concepts and Strategy conducted a proof of principle of OBP of doctrine. The proof of principle, called the Doctrine Taxonomy Initiative (DTI), showed the ability of doctrine to be stored as stand-alone topics rather than books or manuals. The success of this test was the catalyst for Army-wide adoption of OBP. The advantages of publishing stand-alone topics versus manuals include:

- Better reusability of information—no redundant storage of information
- Allows for centralized update and real-time dissemination of information
- Individual topics are quicker to write and publish than manuals
- Allows for staffing efficiencies
- Allows for doctrine life-cycle efficiencies
- Individual topics are better suited to lower bandwidth environments than large manuals

Over 600 doctrinal publications will be converted to this new format in FY06-07, based on the availability of funding. During this time frame, doctrine development and lessons learned processes will be evaluated and re-engineered to capitalize on this new process of storing information. The combination of the new content storage method and improved business processes will result in timely and relevant doctrine in the field.

Future of the Army Doctrine and Doctrinal Process

Doctrine has served the warfighter well over the years, but must evolve to support a transforming Army. As the Army transforms toward the Future Force, the methods of producing and disseminating doctrine will change to meet the new requirements of this fighting force. The basic premise of the doctrine development program for the future is not in the development of new architectures or expenditures, but in the transformation of doctrinal information through improved collaboration using structured professional forums, otherwise known as “communities of practices.” A structured professional forum is a group of people sharing lessons, concerns, passions and solutions about topics, and who deepen their knowledge and expertise through frequent interaction. Professional associations, software developers and skilled craft guilds are examples. Establishing structured professional forums is an effective way to handle complex problems and to share knowledge outside of the traditional structural boundaries.

The Army doctrine development process can harness the use of online structured professional forums through a network-centric knowledge system to streamline the incorporation of lessons learned and development and fielding of new doctrine as individual topics. In a time

when doctrine needs to be responsive to Soldier inquiries, structured professional forums will play an important role in quickly determining and distributing the requisite knowledge to satisfy doctrinal requirements. This new process must balance our need to maintain enduring, common, contextual doctrine that supports the development of flexible, adaptive leaders, yet allow for rapid integration of lessons learned and updating of specific TTP necessary to support full-spectrum units in the train-alert-deploy construct.

Using the results of Army experimentation that validate new concepts, new technologies that enhance doctrine development, and disciplines that integrate it with joint doctrine, Army doctrine used by the Future Force will bear little resemblance to the doctrine we have today. This new doctrine will have to do more than teach Soldiers how to fight, it must be doctrine that teaches the Soldier “how to think about how to fight.” Relevant, current doctrine contributes to the establishment and maintenance of the Army Soldier as a profession in that it embodies the codification of an expert compendium of knowledge.

This new doctrine and doctrinal process will leverage history and experiences with the latest web-based technologies to create, process and distribute doctrine at all levels. The new doctrine storage, process and retrieval methods will be key factors in Soldier development and how the Soldiers access and use knowledge as part of the Future Force. Object-based doctrine will greatly enhance our ability to conduct rapid, nearly simultaneous, universal updates of related doctrine

and training materials. Used in concert with structured professional forums, it will provide the ability to capture input from any Soldier, anywhere and at anytime, and support the creation of an enterprise-wide knowledge system that can facilitate the rapid reception, validation and sharing of key operational lessons throughout the Army.

Conclusion

The Army’s doctrine must enable core war-fighting capabilities while increasing strategic responsiveness and dominance over an expanded range of mission environments and threats. It must clearly articulate the capabilities of the land component in joint operations. Doctrine that meets these requirements is being developed. The capstone and most important keystone field manuals are being revised and will be republished beginning in 2006. Doctrine to meet the near-term requirements of forces in combat is being developed and disseminated faster than ever before. Efforts to shape Army doctrine will continue throughout the midterm and far term. Through the midterm, TRADOC will incorporate new tools and procedures that will make doctrine development more agile and responsive, while continuing to reflect the best available thoughts on the art and science of military operations. In the far term, incorporation of tools and procedures refined in the midterm will continue as new technology becomes available. These tools and procedures will speed the development and dissemination of future doctrine and help Soldiers rapidly access both the principles and the TTP they need to accomplish their missions.

ANNEX B: ORGANIZATIONS

Overview

The Army, as a key partner in the joint team, remains fully engaged throughout the globe in fulfilling its responsibilities to national security. Additionally, the most salient aspect of the current security environment is that we are a nation and an Army at war—a war unlike any we have experienced in our history. As the National Security Strategy (NSS) makes clear, “the enemy is not a single political regime or person or religion or ideology. The enemy is terrorism—premeditated, politically motivated

violence perpetrated against innocents.” This war is being conducted across the globe and throughout the full range of military operations against rogue states and terrorists who cannot be deterred, but nevertheless must be prevented from striking against the United States, our allies and our interests. Through a trained and ready force, the Army provides the nation joint and expeditionary forces able to transition to sustained land campaign forces, maintaining a nonnegotiable contract with the American people to fight and win the nation’s wars. To do this, the Army meets

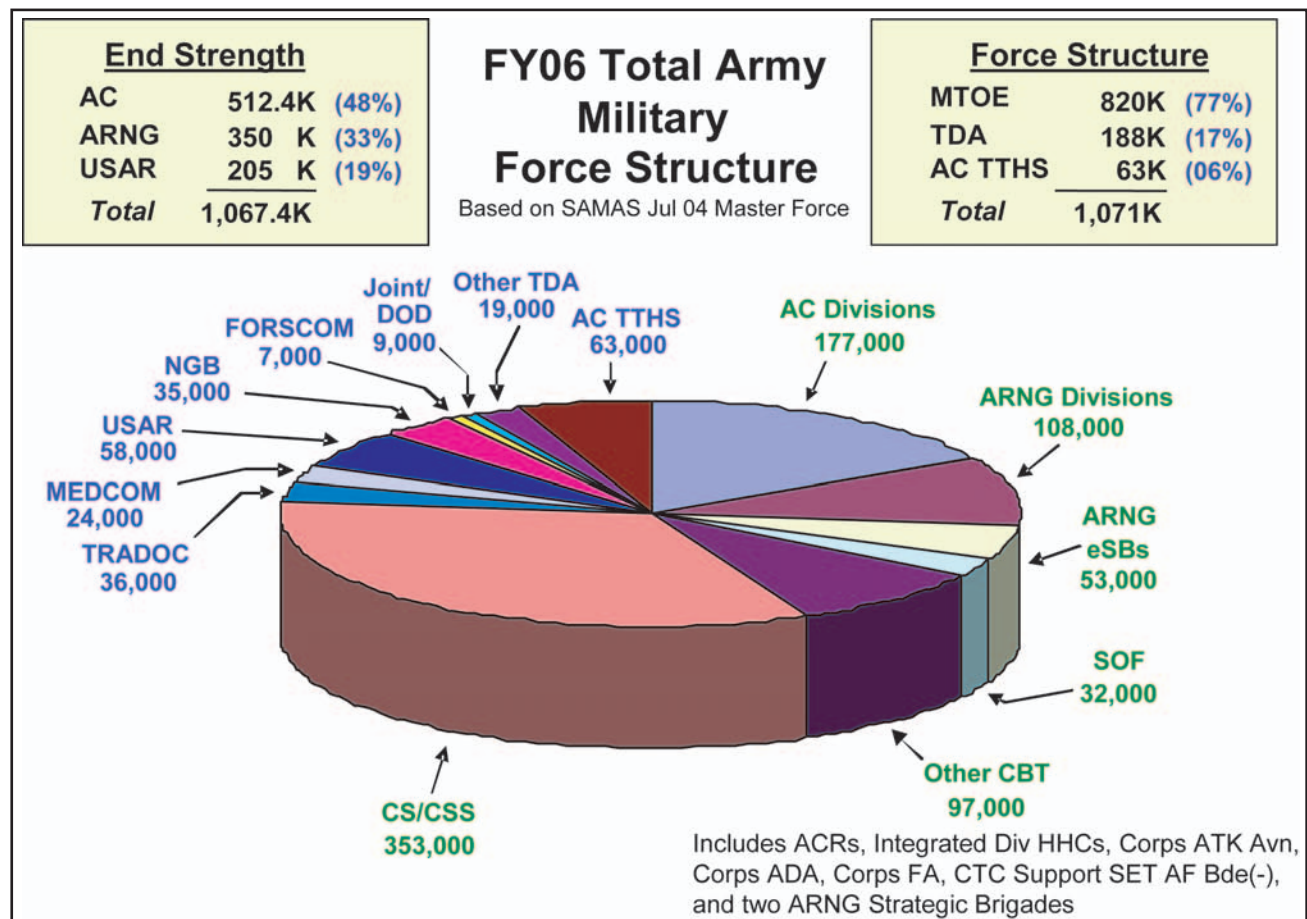


Figure B-1. FY06 Army Military Force Structure

the requirements articulated in the NSS, the Joint Strategic Capabilities Plan (JSCP), and the Contingency Planning Guidance (CPG). The Army is also transforming, as part of the Joint Force, to become more strategically responsive and dominant at every point on the spectrum of operations.

The Army in FY06 is comprised of the Active Component (AC) and Reserve Component (RC) Soldiers and Army civilians. It is organized into a modular brigade-based force consisting of Brigade Combat Teams (BCTs). Additionally, the Army will be converting combat structure to modular BCTs and appropriate combat support (CS) and combat service support (CSS) to support brigades. The AC will be postured to increase the number of BCTs up to five (from 43 to 48) if approved. Key generating force organizations (TDA) (Figure B-1) will continue to evolve, supporting the

brigade-based Army. As the AC completes this transformation, its end strength will grow temporarily by 30,000. As the RC completes its transformation, its force structure will adjust to reflect the growth of RC trainees, transients, holdees and students (TTHS) (8,000 for the Army National Guard (ARNG); 20,500 for the U.S. Army Reserve (USAR)). The Army requires funding through FY11 for AC end strength of 482,400 Soldiers; RC end strength of 555,000 Soldiers (350,000 ARNG and 205,000 USAR); and a civilian workforce of approximately 222,000 personnel.

Army—Current to Future

The Army's main effort is the development of more modular, strategically responsive organizations cultivating and institutionalizing a joint and expeditionary mindset throughout the force. Through this effort, the Army will

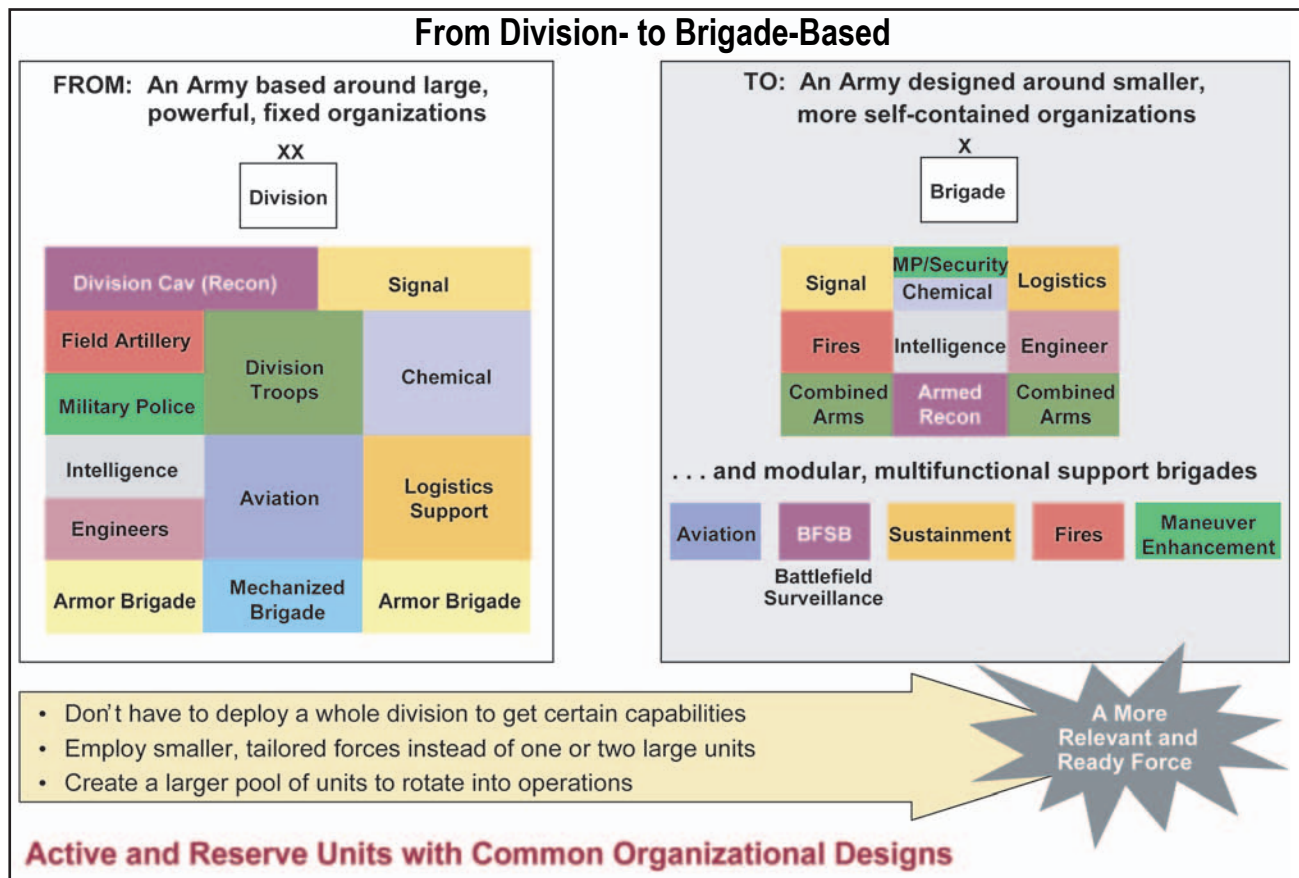


Figure B-2. Brigade-Based Force

greatly increase the combatant commander's ability to rapidly defeat any adversary or control any situation across the full range of military operations. Modular, capabilities-based forces will better support combatant commander requirements by more effectively enabling the delivery of the right Army capabilities at the right place and time. This is central to optimizing the relevance of Army forces to the combatant commander and expanding the joint team's ability to rapidly deploy, employ and sustain forces throughout the global battlespace in any environment and against any opponent.

Modular, capabilities-based Army force designs will enable greater capacity for rapid and tailorable force capability packages and improve the strategic responsiveness of the Joint Force for full-spectrum operations. Modular CS and CSS units with reduced logistics footprints and sense-and-respond logistics capabilities are essential to responsiveness, and they enhance the versatility of the Joint Force to seamlessly transition to sustained operations as a crisis or conflict develops. Informed by operational experience and Future Force designs, the Army began in FY04 to implement modular conversion in three of its AC divisions. These initial conversions served as prototypes to accelerate the modular redesign and fielding of the Current and Future Forces.

Moving toward completely independent echelon above brigade headquarters also enhances modular conversion. The Unit of Employment (UE) concept implements a UEx (higher tactical headquarters) and a UEy (operational-level headquarters); a modular command and control structure; and modular, capabilities-based BCTs organized to meet combatant commander requirements. Both types of UE headquarters, while able to accept joint capabilities such as a Standing Joint

Force Headquarters (SJFHQ) element, will have an organic capability, depending on the contingency, to perform functions as a joint task force (JTF) or joint force land component commander (JFLCC) headquarters with augmentation. Simultaneously, the Army is fielding a Stryker force of six BCTs that will meet the near-term requirements in support of warfighting combatant commanders by bridging the capability gap between our infantry and heavy current forces. These Stryker Brigade Combat Teams (SBCTs) are part of the Current Force. Throughout the transformation process, the Army continues to selectively modernize and recapitalize the Current Force in order to retain significant overmatch over present and potential adversaries.

The Army National Guard Division Redesign Study (ADRS) continues to convert selected combat forces to much needed CS and CSS while the remaining combat forces convert to the brigade-centric designs. The USAR will array its forces in support brigades and Army expeditionary packages to answer rotational missions and enduring warfight requirements.

The conversion of these modular BCTs will begin to posture the Army toward generating the first Future Combat Systems (FCS)-equipped units. In FY08, the Army will designate an FCS evaluation unit to guide the development of these forces. Additionally, the Army will spiral into its Current Force those proven capabilities that can be easily integrated into the Current Force.

Another supporting effort is the Army's redesign of its force generation forces (i.e., institutional forces and infrastructure) to gain advantages in force development, force projection, force management and force sustainment. This redesign is reshaping the Army, allowing operational forces to reach back into strategic

and national capabilities through enhanced communications and data exchange systems. Efficiencies gained in this area allow the Army to minimize theater-required capabilities while reducing strategic-lift requirements normally placed on the Army's sister Services.

The Army reinvests efficiencies gained across the current stock of capabilities and organizations into those organizations that are most critical to combatant commanders. The overhaul of our personnel and logistical systems create efficiencies in force structure that are then reinvested within operational forces to sharpen the package of capabilities required to fight and win our global war on terrorism and posture the Army for future operations.

The Army rebalances itself by adjusting the mix of AC and RC forces to quickly meet operational availability and rotational demands placed on the Army. These three aspects (force redesign, reinvestment and rebalancing), taken in the aggregate, enable the Army to dynamically recast its forces to meet the needs of the National Security and Defense Strategies, combatant commanders and Army commanders in an austere fiscal environment with acceptable risk. Army capabilities supporting the combatant commands are enduring. The Army assesses these demands to our Current and Future Forces and determines how best to resource them. In the end, the Army ensures that we do what is right for our people, maintains readiness, and transforms to a future, more strategically relevant, Army every day.

Logistics transformation is a key piece of Army transformation that directly supports the Army becoming a more strategically relevant force. The goals of logistics transformation are to ensure Army forces are capable of rapidly deploying in support of current and future operational force deployment objectives, ef-

fectively sustaining a full-spectrum Army while synchronizing Army and joint efforts to:

- Enhance strategic responsiveness—meet deployment time lines
- Optimize sustainment capabilities while minimizing the footprint
- Reduce the cost of generating and sustaining forces while maintaining warfighting capability and readiness

The Army's ability to support the National Security and Defense Strategies remains central to determining force structure requirements as we plan and execute Army transformation. The Army is leveraging information technology and structuring a totally integrated force, sized and shaped to meet worldwide commitments.

AC/RC Rebalancing

The Army is making a concerted effort to rebalance the mix of AC/RC forces with the goal of mitigating stress on high-demand RC units for overseas rotations. This rebalancing effort results in the restructuring of over 100,000 spaces of force structure in FY04-11.

The 9 July 2003 Secretary of Defense (SECDEF) memorandum on rebalancing forces directed the Services to eliminate the need for involuntary mobilizations during the first 15 days of a rapid response operation. Additionally, the Services were directed to reduce the current stress on RC units by structuring forces to limit involuntary mobilizations to not more than one year every six years. In response, the Army prepared two program change packages (PCP) for submission to the Office of the Secretary of Defense (OSD). The first PCP (PCP 06) dealt exclusively with the issue of responsiveness during the first 15 days of a rapid response operation. The

ensuing review resulted in the rebalancing of 5,600 spaces of force structure from the RC to the AC. PCP 07 was submitted to address the SECDEF's directive to limit involuntary mobilizations. Analysis focused on identifying RC organizational shortfalls in support of normal overseas rotational requirements. The resultant recommendation identified 4,000 spaces of RC force structure for rebalancing to create the high-demand unit depth required to limit involuntary mobilizations.

In an effort to improve the responsiveness of the Army, the Chief of Staff, U.S. Army (CSA), directed a follow-on effort to improve the overall readiness of both AC and RC deployable organizations. Efforts focused on improving overall personnel and organizational readiness through the elimination of authorized level of organization (ALO) as a resourcing strategy, establishment of TTHS-like accounts for both the ARNG and USAR, and implementation of force stabilization policies. Efforts also focused on improving relevance through the optimization of select RC force structure to perform homeland defense, and stability and support missions, and building the required depth to support long-term, steady-state rotational requirements. The rebalancing efforts associated with these initiatives resulted in the restructuring of over 85,000 spaces of force structure.

The end state of these collective rebalancing efforts is a ready and relevant Army, capable of responding to combatant commander requirements while simultaneously defending the homeland and possessing the requisite depth to conduct multiple stability and support operations.

Strategic Planning, Modular Support Forces Analysis (MSFA) and Total Army Analysis (TAA)

The 2004 National Defense Strategy establishes four strategic objectives: secure the United States from direct attack, secure strategic access and maintain global freedom of action, establish security conditions conducive to a favorable international order, and strengthen alliances and partnerships to contend with common challenges. The force-planning construct in TAA is still focused on the "1-4-2-1" strategy of: protect the homeland ("1"), deter forward in four critical regions ("4"), swiftly defeat adversaries in two near-simultaneous conflicts ("2"), while preserving for the president the option of decisively defeating one of those adversaries ("1"). The Army shaped the conditions of the TAA process by implementing an MSFA that yielded the support brigades required to support the brigade-centric Army. MSFA results informed the TAA process, which in turn addressed the requirement to maintain sufficient force generation capability and the need for rotational forces to support small-scale contingency operations.

While maintaining the capabilities necessary to meet operational demands, TAA06-11 provided the basis for meeting the transformation objectives of modular conversion and the AC/RC force balance objectives directed by the SECDEF and CSA in FY05. To meet these objectives, a temporary strength increase of 30,000 within the AC is projected through the end of FY09. Although strength within the RC remains at 555,000, the mix of force structure allowance within both the ARNG and USAR will change as TTHS accounts are established in both components by the end of FY08.

To ensure timely force structure programming to meet operational demands and transforma-

tion objectives, TAA is undergoing a change in process and time line. During the fall of FY05, the Army conducted a “mini-TAA” to identify force structure needed to support the brigade-centric organizations resulting from modular conversion—an MSFA. Beginning in January 2005, the Army initiated TAA08-13 to address all aspects of modular conversion, AC/RC balance, and rotational force requirements in preparation for the 2005 Quadrennial Defense Review (QDR 05) and the FY08-13 plan. By adjusting to an annual force analysis cycle, TAA will ensure the proper mix of force capabilities to ensure maximum support to the combatant commanders.

Operating Force Structure

The Army’s operating force must be sufficient in both size and capability to meet all requirements contained in the new defense strategy to provide the nation with a full range of land force capabilities in support of current and future joint warfighting.

The operating force is the warfighting portion of the Army—the force that fights and wins the nation’s wars by providing the combat capability necessary to sustain land dominance. The operating force accounts for approximately 79 percent of the Army.

Army operating forces can be notionally divided into major groups: maneuver brigades, operational headquarters, support brigades, and special operations forces.

Maneuver Brigades

The decisive effort of Army transformation is the creation of modular, combined-arms maneuver BCTs. As part of this transformation, the Army migrates capabilities that were previously found at divisions and corps to the brigade—the building block of combat forces

in the Future Force. Each type of brigade will be of standard configuration and organization. Further, these brigades will gain improved force packaging, sustainability, battle command and situational awareness while retaining the same lethality as the larger, task-organized BCTs. These units will serve as the foundation for a land force that is balanced and postured for rapid deployment and sustained operations worldwide. Army general-purpose, modular formations will be capable of rapidly foreclosing an adversary’s options, achieving decisive results in major combat operations, and setting many of the security conditions for enduring conflict resolution.

The three BCT designs are infantry, heavy (armored/mechanized) and Stryker. These BCTs are similar in overall configuration. Infantry and heavy will be organized with two maneuver battalions, while the Stryker will have three. Infantry and heavy will have an armed reconnaissance or reconnaissance, surveillance and target acquisition (RSTA), squadron; a fires battalion; a support battalion; and a brigade troops battalion. Stryker will not have a brigade troops battalion but will contain an engineer company. These designs are shown in Figure B-3.

- The brigade troops battalion provides the command posts, liaison, military intelligence and signal support for the brigade.
- The armed reconnaissance squadron or RSTA battalion conducts reconnaissance, surveillance and target acquisition functions for the brigade. It consists of conventional and chemical reconnaissance units.
- The two combined arms battalions are the maneuver forces for the infantry and heavy BCTs and consist of four infantry or armor companies. They also pos-

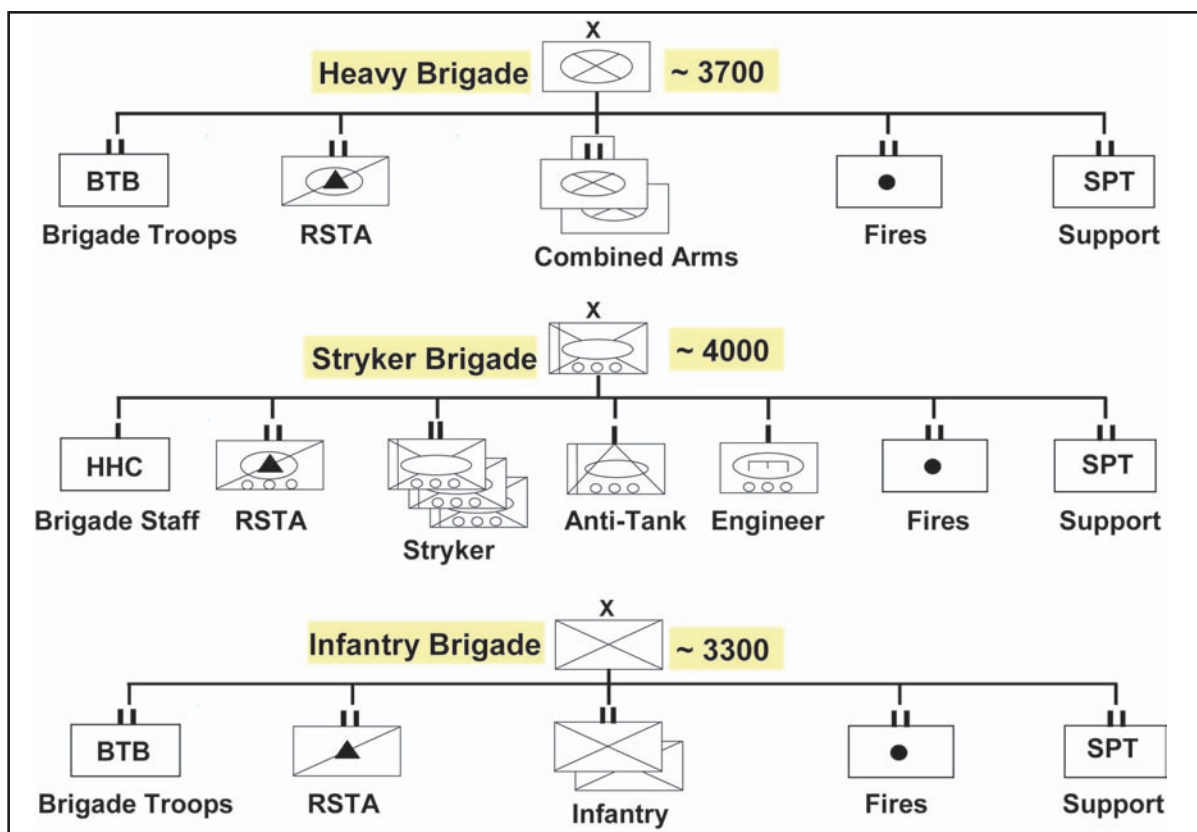


Figure B-3. Brigade Combat Teams

sess scouts, engineers and sustainment forces.

- The fires battalion consists of two artillery batteries with target acquisition and countermortar radar systems.
- The support battalion provides additional transportation, distribution and maintenance functions that cannot be covered by the forward support companies. It also directly supports the brigade troops battalion.

Modular Headquarters. Between now and 2010, two standing echelons will replace the existing structure of divisions, corps and echelons above corps. These echelons are currently designated UEx, which normally has tactical and operational control of brigades, and UEy, which normally provides the Army's functional capabilities to the joint force commander. While the natural tendency is to think

of these echelons as linear improvements to the division and corps, the UEx and UEy are not. Both higher echelons will be modular entities designed to employ a tailored mix of forces and will integrate joint functions by design. Both headquarters will also be able to work directly for the joint force commander. Figure B-4 shows these headquarters, the redistribution of functions, their relationship to each other and their correspondence to former organizations.

Unit of Employment X (UEx). The UEx is the Army's primary tactical and operational warfighting headquarters. It is designed as a modular, command and control headquarters for full-spectrum operations. The UEx has no organic subordinate units other than the actual headquarters units. These headquarters will employ separable, deployable command posts for rapid response and entry; provide reach and reachback capabilities to

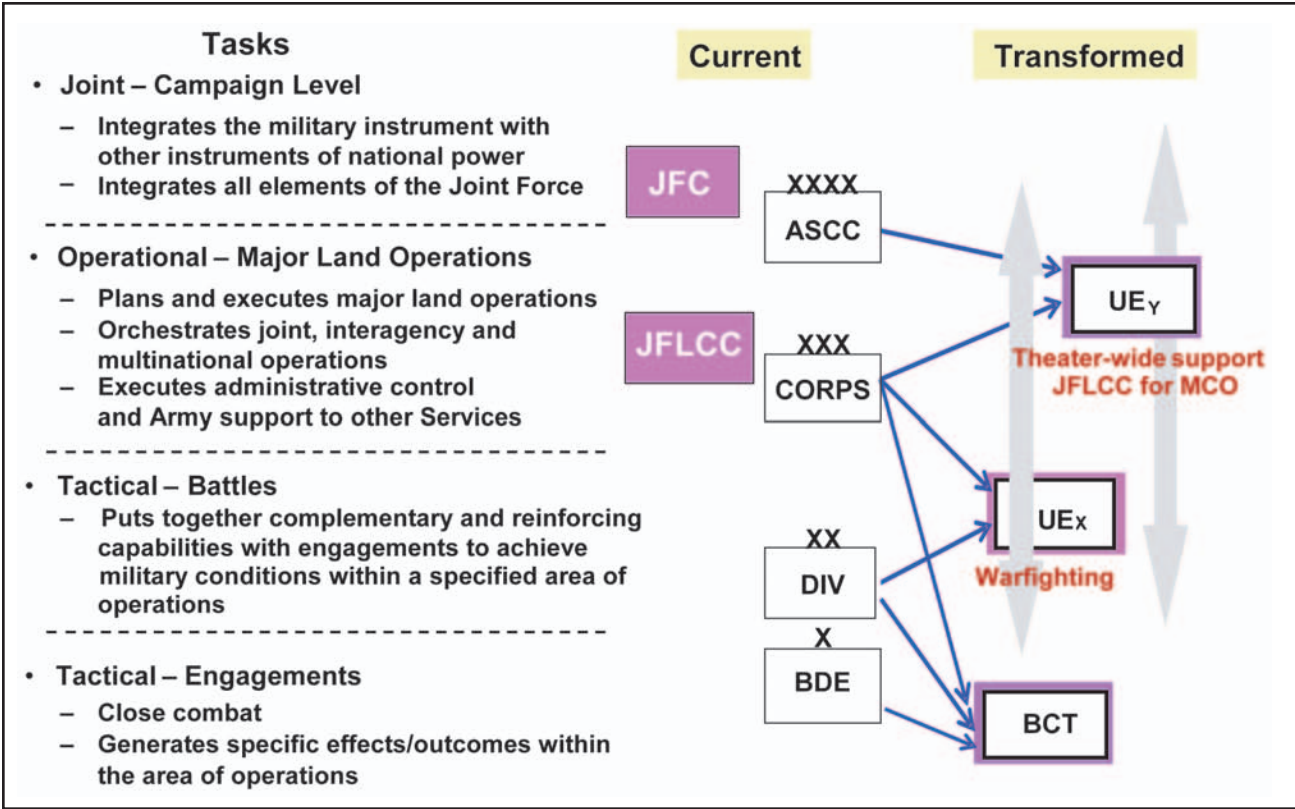


Figure B-4. Levels of Command Transformed

minimize forward footprints; and be network-enabled organizations capable of enhanced battle command. The UEx headquarters has organic liaison teams. It does not depend on any subordinate brigade to provide elements of the special staff, and it has a security company that can provide security platoons to its mobile elements. The UEx headquarters design is shown in Figure B-5. The UEx is organized, manned, trained and equipped to:

- Control up to six maneuver brigades. It may control more maneuver brigades in protracted stability operations. The UEx may also control more maneuver formations when the maneuver units are cycling through mission staging. The brigades may include any mix of heavy, infantry, Stryker and, eventually, FCS-equipped brigades.

- Control a tailored mix of other warfighting functions organized under multifunctional brigades including fires, maneuver enhancement, battlefield surveillance, aviation and sustainment brigades. The mix of forces assigned to the support brigades is determined by mission, enemy, terrain and weather, time, troops available and civilian (METT-TC) and not by standard template.

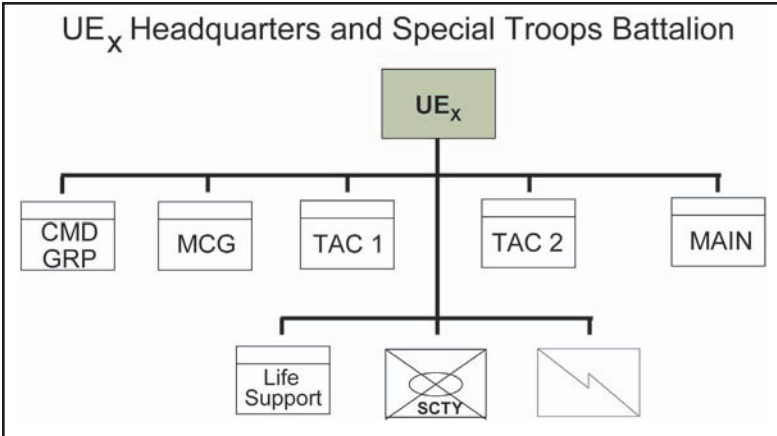


Figure B-5. Unit of Employment X

- Organize and distribute command and control assets according to the situation. The UEx commander may alternate command posts between planning and execution functions and assign them to geographically dispersed operations as shown in Figure B-6. The commander may allocate them to divergent, simultaneous operations or functions.
- Function as an Army forces (ARFOR) headquarters or the joint force land component commander (JFLCC) for small-scale contingencies. The UEx may serve as both the ARFOR and JFLCC simultaneously, although augmentation may be required for extended operations.
- Direct mobile-strike and precision-strike operations through mission orders to the aviation and fires brigades.
- Control battalion-sized to brigade-sized air assaults within its assigned area of operations (AO), using aviation elements under its operational control. However, the UEx does not control simultaneous airborne operations and air assault operations. Most airborne operations will require either a brigade-sized airborne task force or another UEx.
- Employ sustainment brigades provided by UEy elements to establish temporary bases as required. Using these bases, the UEx rotates brigades through mission staging operations (MSOs), supports replenishment operations in the maneuver brigades' AOs, and provides area support to other brigades supporting the operation. The UEx employs maneuver enhancement brigades and maneuver forces to provide area security for these bases.
- Operate independently along a line of operations during offensive operations, or in an AO to establish the military conditions required for the successful conclusion

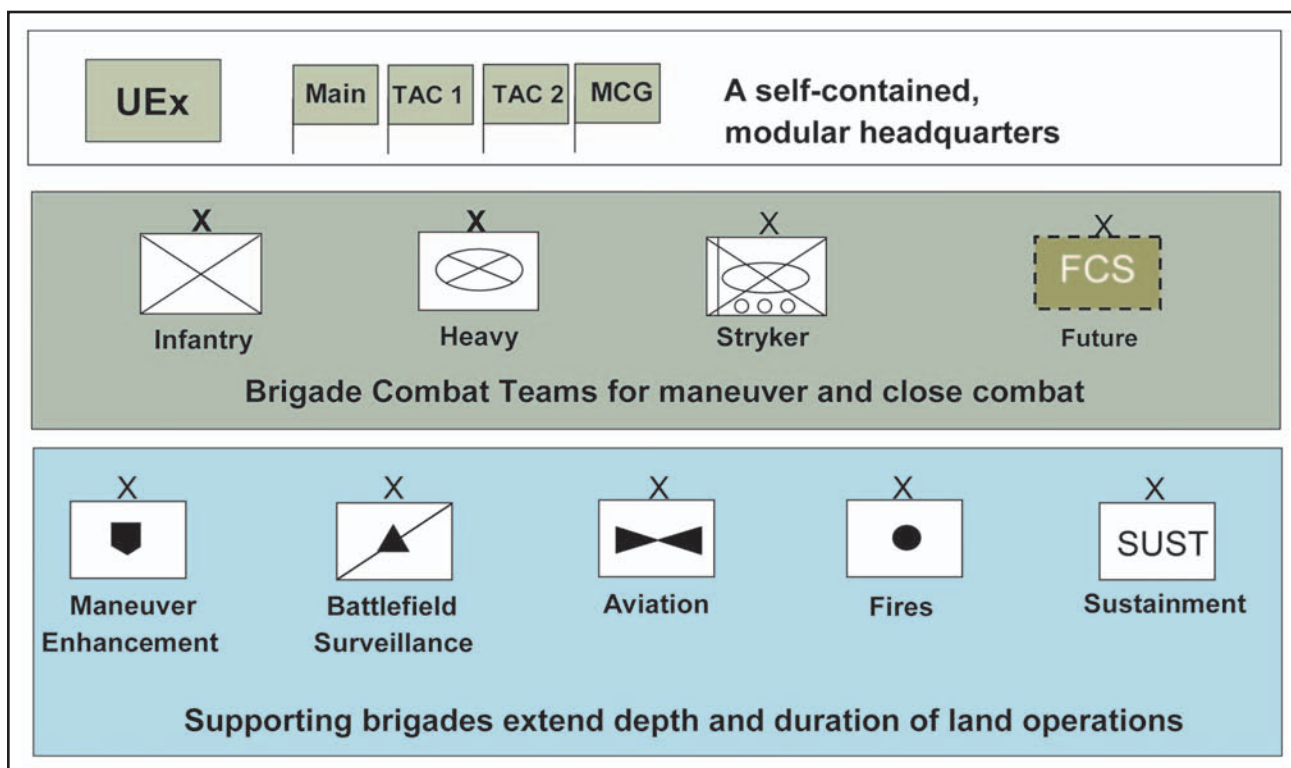


Figure B-6. UEx Notional Package

of the major land operation or joint campaign.

The Unit of Employment Y (UEy). A concept is under development for an Army theater-level headquarters to support regional combatant commanders. This concept calls for the consolidation of functions currently performed by corps and Army service component commands into a UEy organization. The UEy would focus on the Army's component responsibilities for the entire theater's joint, interagency and multinational operational land forces. During major combat operations, where the regional combatant commander is the joint force commander, the UEy would normally become the JFLCC and exercise operational control over tactical land forces. The specific organization of each UEy would

be based upon the requirements of the joint force commander and the conditions in the theater. The UEy would normally include associated intelligence, sustainment, signal and civil affairs (CA) capabilities. This would enable Army forces to be more responsive to the needs of combatant commanders, as shown in Figure B-7.

Support Brigades. Each support brigade shares a set of common characteristics. First, the support brigade will be tailorable based on mission, enemy, terrain and weather, troops and support available—time available (METT-TC). Even those with most or all of their subordinate units organic, such as aviation brigades, can be tailored for specific missions. Second, the brigades themselves will have to be modular so that they can plug

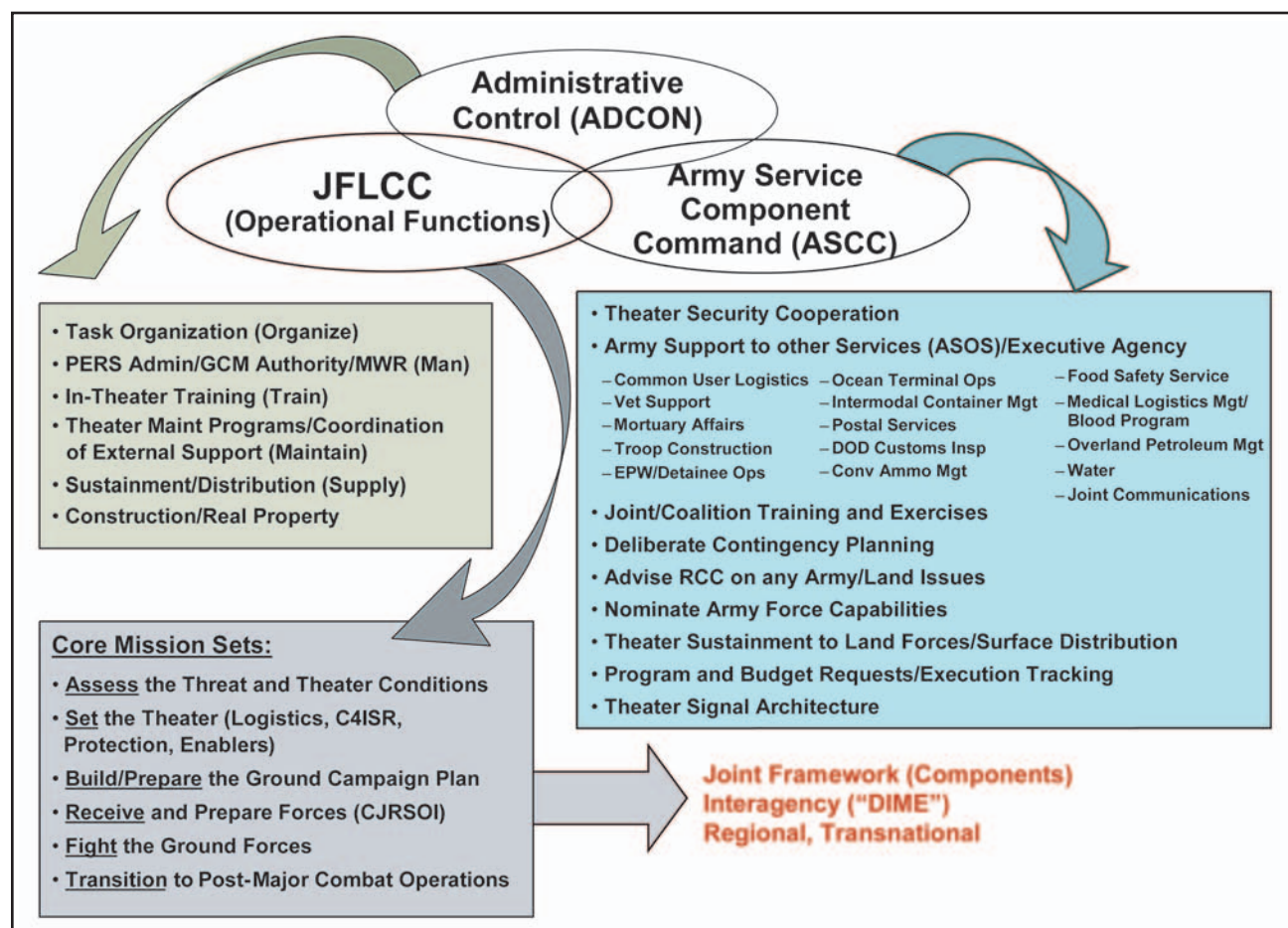


Figure B-7. UEy Theater Functions and Required Capabilities

into or out of any headquarters easily and effectively. Each will have the network connectivity and a liaison officer to work not only for UE headquarters, both UEx and UEy, but also for another Service, another functional headquarters or a multinational headquarters. These units will be inherently joint in that they will be able to access and use appropriate joint enablers to accomplish their functions, and they will be able to, in turn, contribute to the joint capability. For example, battlefield surveillance brigades (BFSBs) will access and use joint intelligence to help it cue its own assets. It will feed the information it develops about the enemy into the joint force commander's intelligence picture. Finally, the support brigades will have capabilities that can be used by the UEx commander to task organize other brigades assigned to the UEx. For example, the fires brigade will have artillery that can reinforce artillery within a

BCT, or be given a direct support mission to the aviation brigade for deep attack missions. Similarly, the mission enhancement brigade will be able to reinforce or provide basic capabilities for air defense for a fires brigade, provide additional engineer capabilities to any other brigade, or provide nuclear, biological and chemical (NBC) decontamination to other brigades.

In conjunction with developing modular maneuver brigades, the Army is also developing distribution support capabilities aligned by specific functions. Conceptually, these support brigades are currently aligned with UEx headquarters; they are self-contained organizations that are capable of deploying and operating independently. The functions of the support brigades are outlined in Figure B-8.

The fires brigade will provide the UEx commander with precision-strike capabilities that

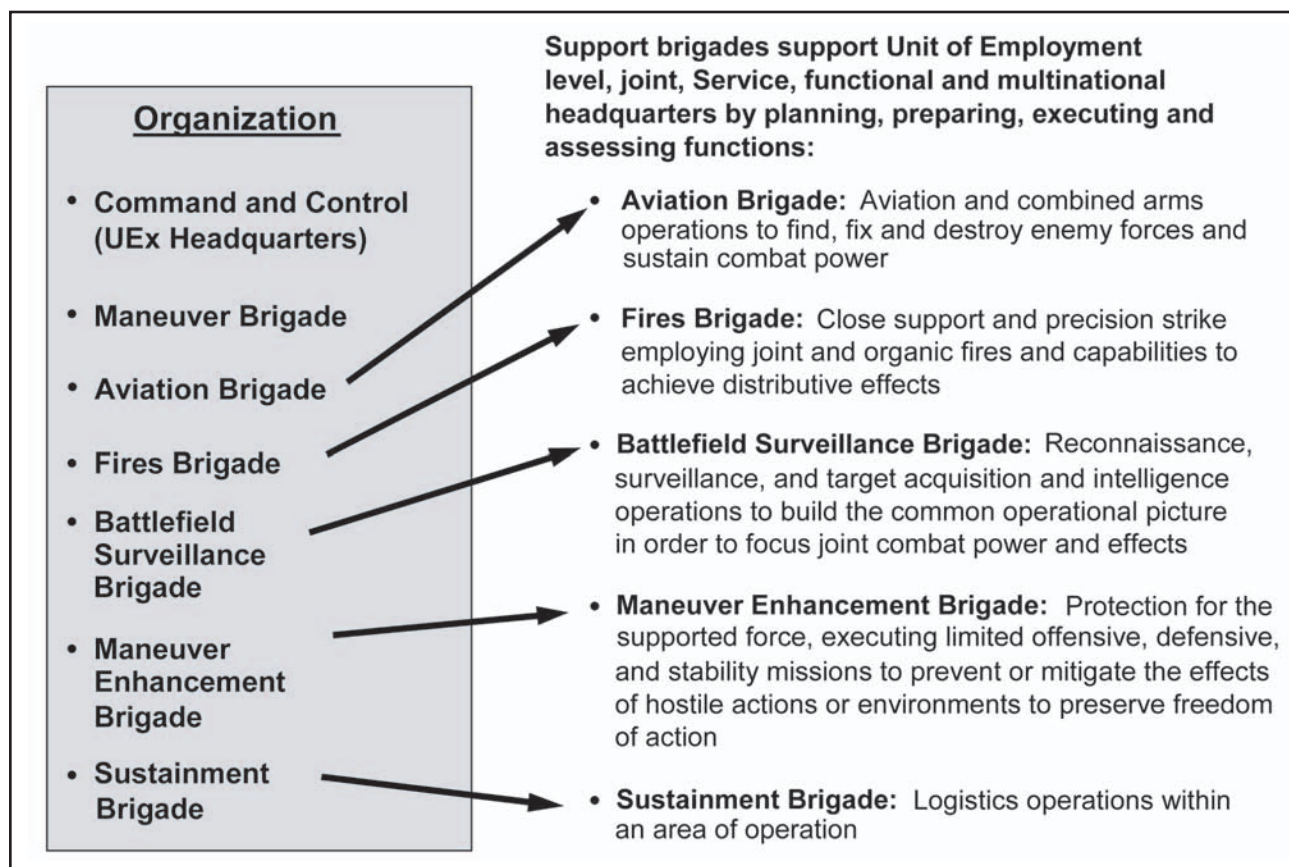


Figure B-8. Functions of Support Brigades

can control both Army and joint fires throughout the depth of the UEx AO. It has organic target acquisition capabilities and will be tied closely to reconnaissance and surveillance assets. It is capable of executing both lethal and nonlethal effects for the commander and will be able to direct armed UAVs. Figure B-9 shows the fires brigade organization.

As its primary mission, a BFSB will synchronize all of the dedicated collection assets available to the UEx. It will link to joint intelligence, surveillance and reconnaissance capabilities. This brigade will complement the situational understanding developed by the maneuver brigades and lead the fight for information

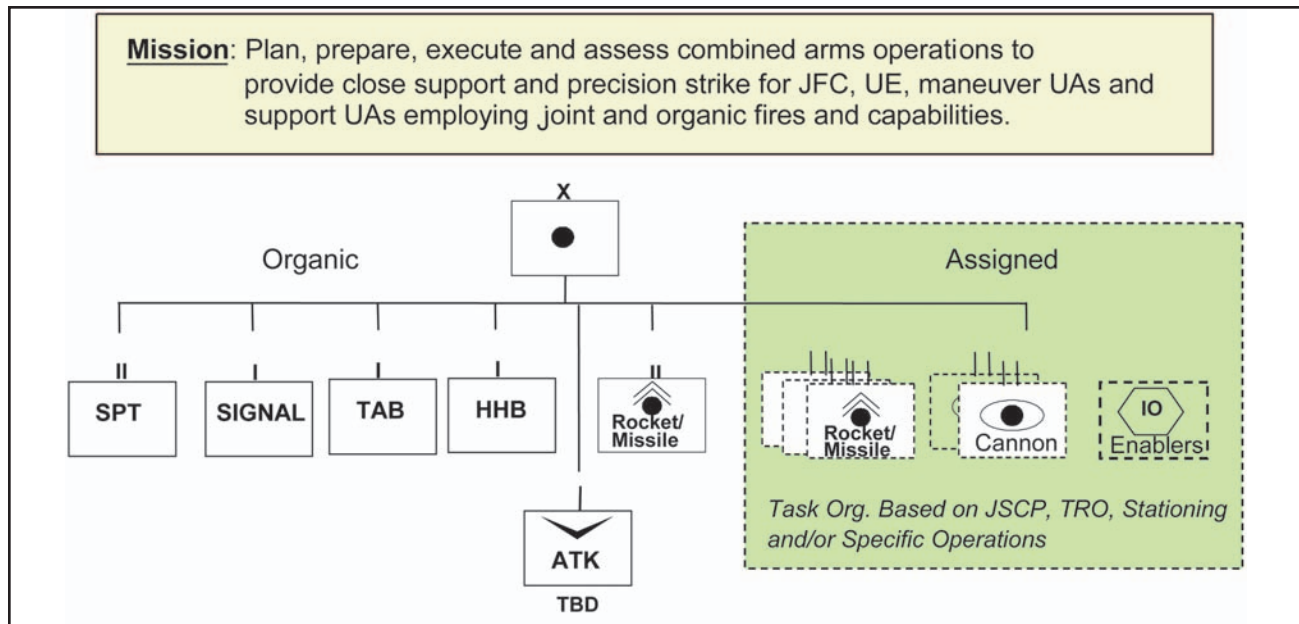


Figure B-9. Fires Brigade

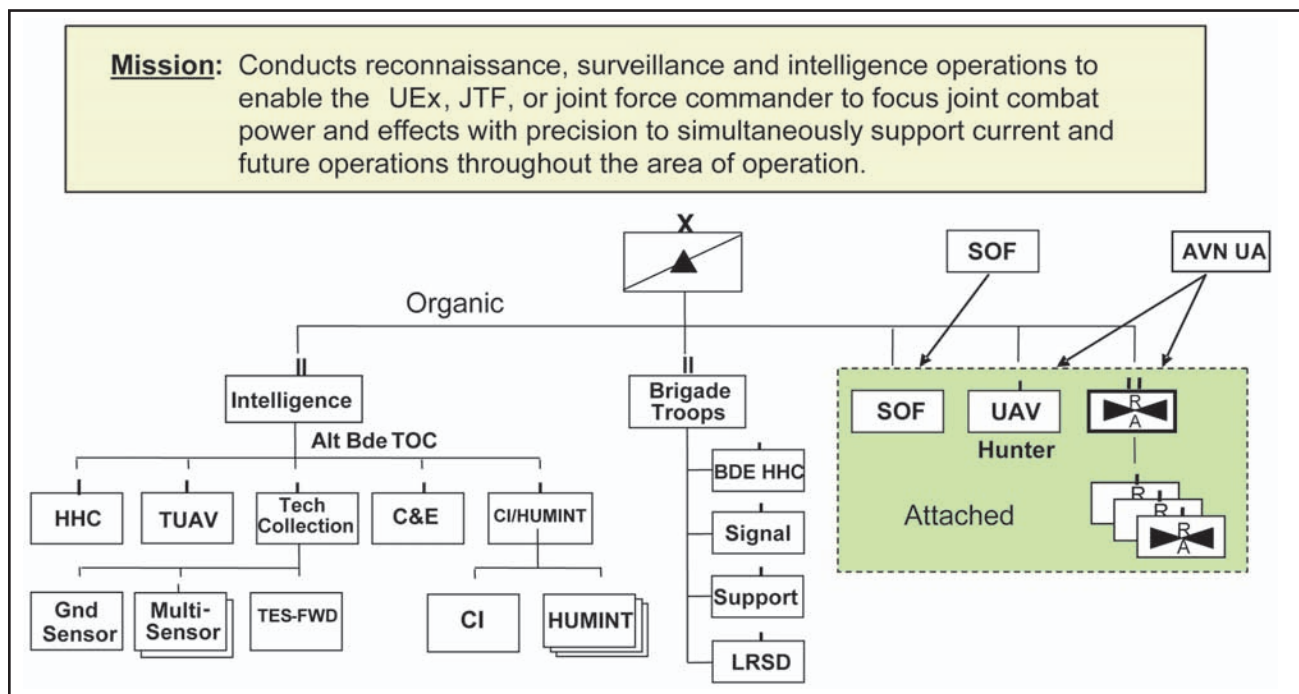


Figure B-10. Battlefield Surveillance Brigade

within its AO. The BFSB structure is shown in Figure B-10.

The maneuver enhancement (ME) brigade will synchronize protection, mobility and unique effects capabilities across the entire AO. It is to be the joint rear coordinator when the joint force commander designates the Army to carry out this function. It will have a staff capable of planning air defense; NBC defense; military police actions and construction

engineer tasks. The ME brigade organization is shown in Figure B-11.

The sustainment brigade will provide logistics support for the UEx and its subordinate units throughout the AO. The sustainment brigade will link theater-level supply and service activities with the maneuver brigades' organic sustainment organizations, as shown in Figure B-12. Over the near term, the Army is developing a comprehensive sustainment concept for the new modular force design.

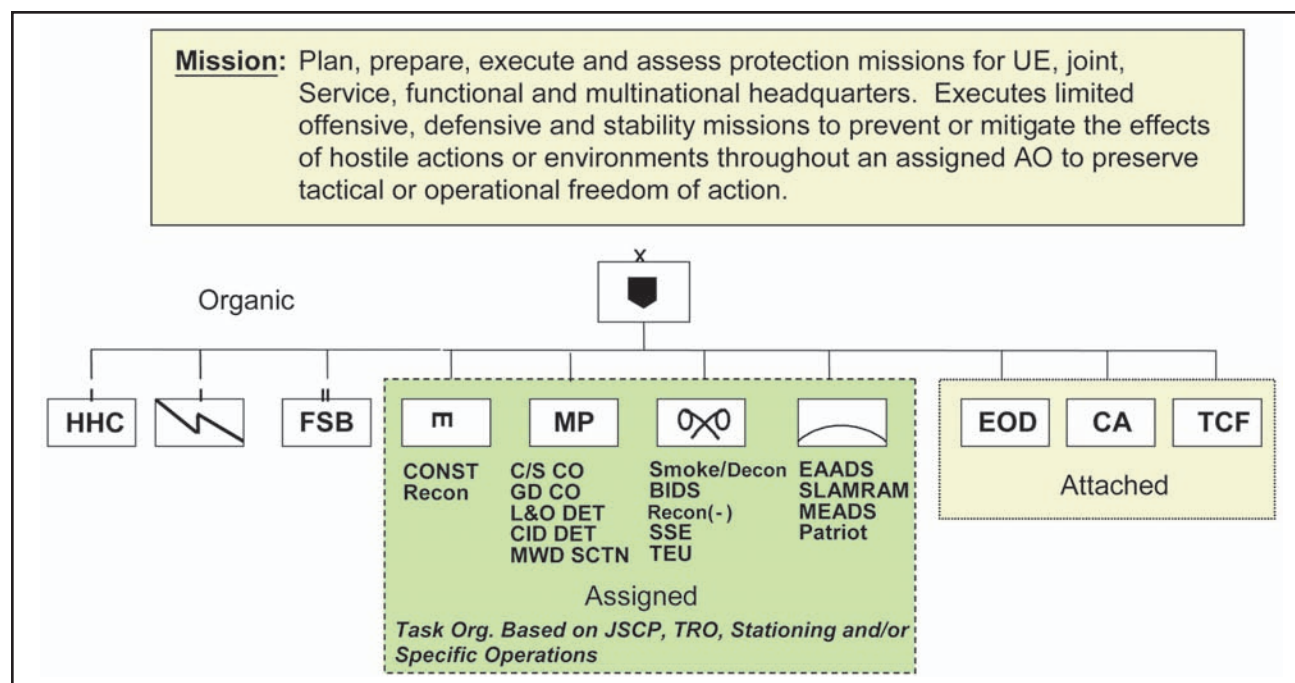


Figure B-11. Maneuver Enhancement Brigade

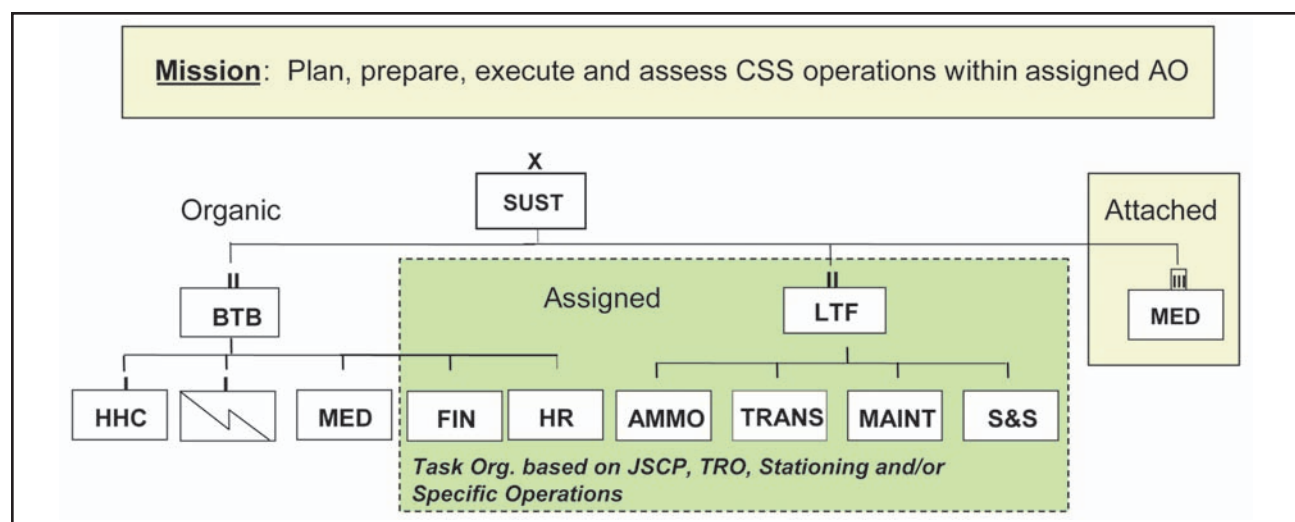


Figure B-12. Sustainment Brigade

The aviation brigade (Figure B-13) will be fully capable of planning, preparing for, executing and assessing mobile-strike operations and deep attacks using attack helicopters. It will retain a fully capable fire support element that possesses suppression of enemy air defense, maintains the intelligence links to track targets, and includes the Army aviation battle command element to coordinate airspace control measures as necessary—all linked to the appropriate joint systems.

force and land component commanders. ARSOF helps in shaping the security environment by dissuading and deterring potential adversaries, creating indigenous capabilities that strengthen resistance to the influence of potential adversaries and, when necessary, executing prompt, responsive and decisive operations to achieve military and national objectives. In response to an increasing demand for ARSOF support to joint force commander campaign plans, the Army has

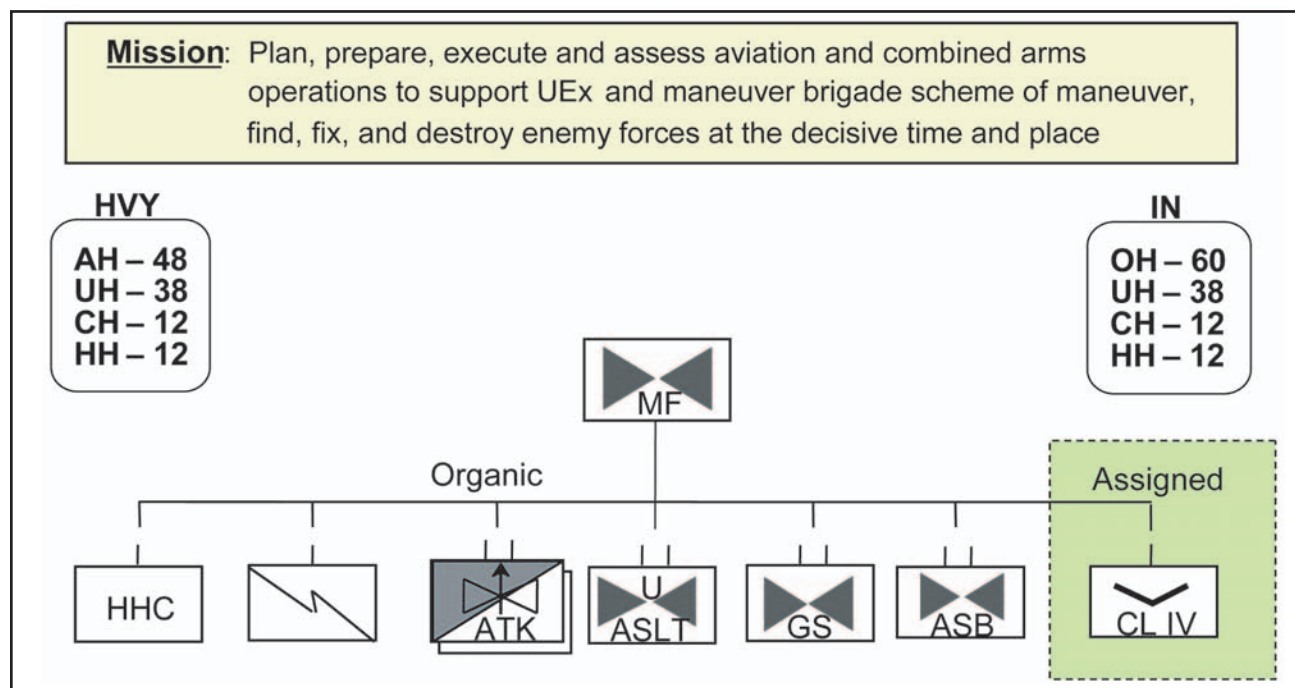


Figure B-13. Aviation Brigade

When completed, Army modular organizations will be menu items—brigade-sized formations that accomplish the major functions required for the full range of military operations from which the joint force commander may choose to meet his needs. The mission requirements determine the mix of forces without the constraints of fixed, large, standing organizations such as divisions or corps.

Army Special Operations Forces (ARSOF)

ARSOF is an indispensable part of the Army that provides unique capabilities to the joint

validated and resourced growth in its SOF structure. ARSOF special forces (SF), CA, psychological operations (PSYOP), aviation, Rangers and CSS restructuring has been critical to the Army transformation strategy.

Special Forces Group (Airborne) (SFG (A)) Band I redesign increases combat power by providing augmentation in battle staff support to special forces operations base (groups) and forward operations base (battalions) that raise their self-sufficiency and sustainment capabilities. It maximizes the SFG (A) ability to train, plan, conduct and sustain full-spec-

trum unconventional warfare operations and theater crisis response missions. It integrates situational awareness technology and tactics, techniques and procedures to the SF operational detachment-Bravo (company) level.

Civil affairs (CA) redesign provides a more robust force structure in support of ARSOF requirements by creating an AC CA brigade with four regionally oriented AC CA battalions and adding a fourth RC CA company to each USAR CA battalion. Common to AC and RC redesigns are new capabilities such as enhanced civil affairs teams (CAT), an organic and deployable civil-military operations center (CMOC), organic civil affairs planning teams (CAPT), and an organic civil information management section capable of integrating and fusing the civil common operational picture (COP) into the joint force commander's COP.

Psychological operations (PSYOP) redesign creates additional AC and RC tactical PSYOP companies and two additional RC tactical battalions. Common between AC and RC redesigns are new capabilities such as enhanced tactical PSYOP companies equipped with organic print capability and enhanced regional PSYOP battalions capable of forming the core of psychological operations task forces (POTF). AC and RC dissemination forces are rebalanced; their improved reachback technologies ensures the rapid development and production of PSYOP products; and the fielding of the latest product dissemination technology (radio, TV, print) provides advanced distribution capabilities.

AC CA and PSYOP redesign provides a bridge capability to the Army's modular force until the USAR CA and PSYOP units can mobilize and deploy. RC CA and PSYOP redesign meets Army modular force initiatives, supporting the UEx/brigade, operational con-

cepts. In summary, these CA/PSYOP force design updates (FDU) are essential elements of transformation that, once approved and resourced, will provide significant capabilities to the Joint Force.

Army special operations aviation (ARSOA) redesign creates a robust force structure capable of providing sustained special operations rotary-wing aviation support (a high-demand/low-density asset) to both Army and other joint SOF elements. The forward expeditionary force structure is conceptually modular and includes aviation expeditionary forces that are more flexible, sustainable and mission tailored. Once approved and resourced, all ARSOA battalions will field like-model aircraft (MH-47G, MH-60M and A/MH-6M) and be able to deploy modular special operations aviation expeditionary detachments (SOAED) with enhanced command, control and sustainment capabilities.

ARSOF provides the Joint Force with niche capabilities across the full spectrum of operations. ARSOF transformation and growth is critical to sustain the current and projected operational tempo (OPTEMPO) requirements of the global war on terrorism and other future operations. ARSOF redesign and development of effective battle command systems that assure interoperability between SOF and conventional forces are paramount.

Other Operational Capabilities

As part of the modular conversion of its forces, the Army is examining specific functional capabilities that it provides to the combatant commanders. Organization of these capabilities will continue to evolve as the Army matures its UEy-level support concepts for the combatant commanders.

Air and Missile Defense (AMD)

The Army will no longer provide an organic air defense artillery (ADA) battalion to its divisions. Nine of the ten AC divisional ADA battalions and two of the eight ARNG divisional ADA battalions will inactivate. The remaining AC divisional ADA battalion along with six ARNG divisional ADA battalions will be pooled at the UEx to provide on-call AMD protection. The pool of Army AMD resources will address operational requirements in a tailorable and timely manner without stripping assigned AMD capability from other missions.

This pooling concept supports the Army's effort to move to modular designs that allow force tailoring of units better sized to meet combatant commanders' needs and homeland security/defense requirements.

The AMD transition plan converts the AMD force to modular designs with the capability to meet the emerging threat of tactical ballistic missiles, cruise missiles and unmanned aerial vehicles.

Future Engineer Force

Our Army is pursuing the most comprehensive transformation of its forces in the past century as part of the joint effort to transform the U.S. military to protect our national security interests in the future operational environment. Engineer transformation is an essential part of achieving the capabilities required for joint and Army Future Force success. The primary function of the engineer regiment is to assure the mobility of the force at the strategic through tactical levels. Assured mobility is a framework of processes, actions and enabling capabilities intended to guarantee the maneuver force commander the ability to maneuver when and where he desires without interruption or delay to achieve his intent.

The future engineer force is a modular organization that is adaptable and capable of augmenting maneuver BCTs, support brigades and the UEx. There are two categories of future engineer force organizations: embedded engineer force and engineer force pool.

The embedded engineer force is organic to the Army's basic building blocks—the maneuver BCTs. It provides a foundation of mobility capability that small unit formations inside combined arms battalions require full time. The engineer force pool includes all engineer units not organic to a maneuver BCT or embedding in a BCT/UE staff. The engineer force pool consists of baseline forces, mission unit forces, and engineer battle command. The baseline engineer force contains the engineer modules and the scalable command and control frequently required by both maneuver BCTs and support brigades at UEx. The baseline forces serve as the primary building block for providing UEx with tactical and operational engineer capabilities. The mission unit force is comprised of highly specialized engineer capabilities required by baseline forces to execute some missions in support of maneuver BCTs, support brigades, UEx and virtually all of the engineer missions at theater level.

Medical Modernization

The Army continues to work toward completion of the Medical Reengineering Initiative (MRI) as resources become available. MRI reorganizes deployable medical forces at corps and echelon above corps and provides the transitional pathway to the Future Force. To improve the tailorability and modular nature of its structure and permit rapid integration to joint expeditionary applications, the U.S. Army Medical Department has introduced a new concept known as Adaptive Medical Increments (AMI). AMI takes existing medical

force structure and offers the joint and Army planners a wider selection of prepackaged, cellular subcomponents. This concept allows greater flexibility in developing modular deployment support packages.

As the Army transforms and adapts to a changing world environment, the balance of AC and RC is also changing. Our RC is divesting itself of specific laboratory specialties that historically are difficult to recruit and maintain. At the same time, the Reserves are increasing numbers of forces in areas that are more suitable, such as medical logistics. This shift of technical specialties to the AC will improve the Army's ability to respond quickly to the growing number of contingencies around the globe.

Chemical Corps Redesign

The U.S. Army Chemical Corps is undertaking a dramatic change of its force structure in order to meet the demands of the current operational environment. The new chemical unit designs focus on modular conversion and flexibility to support both warfighters and domestic response requirements.

The redesign of the Chemical Corps simplifies its overall force structure. The CS, corps and heavy divisional chemical companies will all be multifunctional companies. The CS company will have platoons capable of conducting NBC reconnaissance and decontamination missions. These companies will also have platoons structured to perform biological detection. All of these companies will possess the skills and training necessary to support forces in combat as well as to provide support to DOD or civilian authorities in response to domestic chemical, biological, radiological and nuclear (CBRN) incidents. Challenges are anticipated in ensuring these units are equipped with the reconnaissance platforms,

decontamination systems, and biological detection equipment necessary to perform their critical missions.

Baseline biological detection and large-area smoke generation will continue to be provided by specialized units, and Chemical Corps personnel will continue to man critical staff positions throughout the Army to advise and train personnel in NBC defense.

Military Police

Transformation, homeland security, the global war on terrorism and current operations have served as catalysts for significant changes to the Military Police Corps. These changes are a combination of organizational designs, increases in force structure to better accommodate requirements and better balance of the AC/RC force mix.

The primary design change is restructuring of the internment/resettlement (I/R) battalions to provide the Soldier/unit skill set required to better meet current and emerging worldwide detainee operations, while still being able to conduct traditional enemy prisoner of war and U.S. military confinement missions. The new I/R battalion design retains existing modular and scalable characteristics, and can be sourced with AC and RC units. Additionally, military police (MP) are moving toward increased standardization of companies, decreasing the number of specialized, limited-purpose organizations and increasing the number of multifunctional "workhorse" MP CS companies, while changing the force design of these latter units to better standardize platoon and squad configurations in support of modular force.

The terrorist events of 11 September 2001 and ensuing military operations significantly increased the already high OPTEMPO of the MP Corps. Because of this high demand for

MP units, the Army is increasing the number of AC MP organizations to better meet requirements without undue stress on assigned Soldiers. MP Soldiers and units continue to support operations from homeland security to operations in Southwest Asia. MP Corps will continue to meet the rotational demands for operations such as guarding detainees at Guantanamo Bay and in Afghanistan and Iraq, contributing to peacekeeping missions such as Bosnia and Kosovo, investigating terrorist and criminal operations, supporting reestablishment of law and order, and conducting stability and insurgency operations following major combat operations.

In response to the continuous high demand for MP Soldiers and units skilled in law enforcement and criminal investigations, detention operations, and combat operations, the Army will use the TAA and other force structuring venues to identify MP structure requirements. The Army will then resource in the optimum AC/RC force mix to support current and emerging worldwide mission requirements.

Military Intelligence

The military intelligence (MI) force structure is undergoing change and growth nearly as dramatic as the MP force structure. There is increased classified connectivity, analytical capability and human intelligence (HUMINT) in the modular brigades. The Army modular design eliminates MI brigades and battalions at corps and division.

MI capabilities are imbedded in modular maneuver units in an MI company of a brigade troops battalion and more robust intelligence sections across unit designs. An MI battalion is included as part of a BFSB, and the division analysis and control function of the MI battalion is resident in the main command

post of the modular division. Modular conversion represents a substantial increase in MI structure and an increase in HUMINT capabilities, analytic support and the ability to access sensitive compartmented information at the brigade level.

Army Signal

Army signal force structure is in the process of reorganization through multiple force design updates: the integrated theater signal battalion (ITSB); tactical installation and networking (TIN) company; JTF/JFLCC command, control, communications and computers (C4) packages and network operations (NETOPS) updates. These changes create a deployable, scalable, modular structure with standardized capability, equipment and training Army wide. The ITSB provides a multifunctional structure that significantly streamlines theater signal structure, reduces the requirement to task organize (“train-as-we-fight” dictum), and bridges the gap between the current and future signal architecture. The TIN company design adds/enhances network installation capabilities to the Army’s cable and wire companies (like cable TV and Internet service providers). The new design is flexible enough to resource the full spectrum of operations from major combat operations to small-scale contingencies to homeland defense operations. The NETOPS force structure update implements the three tenets of NETOPS (network management, information assurance and information dissemination management) in a tiered Network Operations and Security Center (NOSC) providing real-time, collaborative, integrated and seamless end-to-end management and defense of theater-level strategic and tactical networks for all Army global applications and information services. This is only the beginning of reshaping the Army signal force structure. Ongoing developments in signal structure below the corps

level are still being refined. The Army is leveraging technological developments in order to consolidate networks into fully integrated enterprise architectures for all Army forces.

Multicomponent Units

A multicomponent unit (MCU) combines personnel and/or equipment from more than one component on a single authorization document. The intent is to maximize integration of AC and RC resources in an austere environment. MCUs have unity of command and control similar to that of single component units. Under modular force conversion, MCU brigade and division headquarters (such as the ones in the Division XXI) were reorganized to component pure. However, CS and CSS units of echelons above the brigade continue to provide support to optimizing AC and RC resources. MCU status does not change a unit's doctrinal requirement for personnel and equipment, force packaging, or tiered resourcing. MCU selection is based on mission requirements, unique component capabilities and limitations, readiness implications, efficiencies to be gained, and the ability and willingness of each component to contribute the necessary resources. The Army continues to refine the mix of AC and RC in these units to make them more effective in support of mission requirements.

Army Space Forces

Army space forces are evolving as a result of changes to the Army's operational paradigm. Space capabilities are being pushed down and forward from the strategic and operational levels to the tactical level. Space capabilities and systems will enable the tactical warfighter with new communications, situational awareness, targeting, timing, missile-warning and environmental-monitoring capabilities. Wide-band, narrowband and protected satellite

communications, as well as satellite-based imagery, will be integrated into organic and direct-support systems in a seamless and transparent fashion. Net-centric capabilities and connectivity will move space-based/-enabled information to individual Soldiers. Army space personnel, previously assigned to only corps and above, will be part of the brigade, UEx and UEy. They will bring space access, planning and execution capabilities to the tactical warfighter. Additionally, the Army is developing a space cadre within the AC, RC and National Guard with principal duties that will include planning, developing, resourcing, integrating and operating space forces and systems. Development and employment of the space cadre will enhance space operational effectiveness and provide increased utility to the maneuver warfighter.

Generating Forces

Under Title 10, the Army's generating force has responsibility for providing the management, development, readiness, deployment and sustainment of the operating force (Figure B-14).

TAA06-11 was the first effort to deliberately capture and approve generating force requirements by Headquarters, Department of the Army (HQDA). The TAA11 generating force requirements conference quantitatively captured and validated manpower requirements against missions. The Army's generating force consists of approximately 2,400 units and is comprised of military, Department of the Army civilian and contract personnel. The generating force, like the operating force, is resourced within programmed end strength. Since both forces must compete for the same resource pool, management of workforce mix (military, civilian and contractor personnel) within the generating force is critical. Historically, the generating force has used

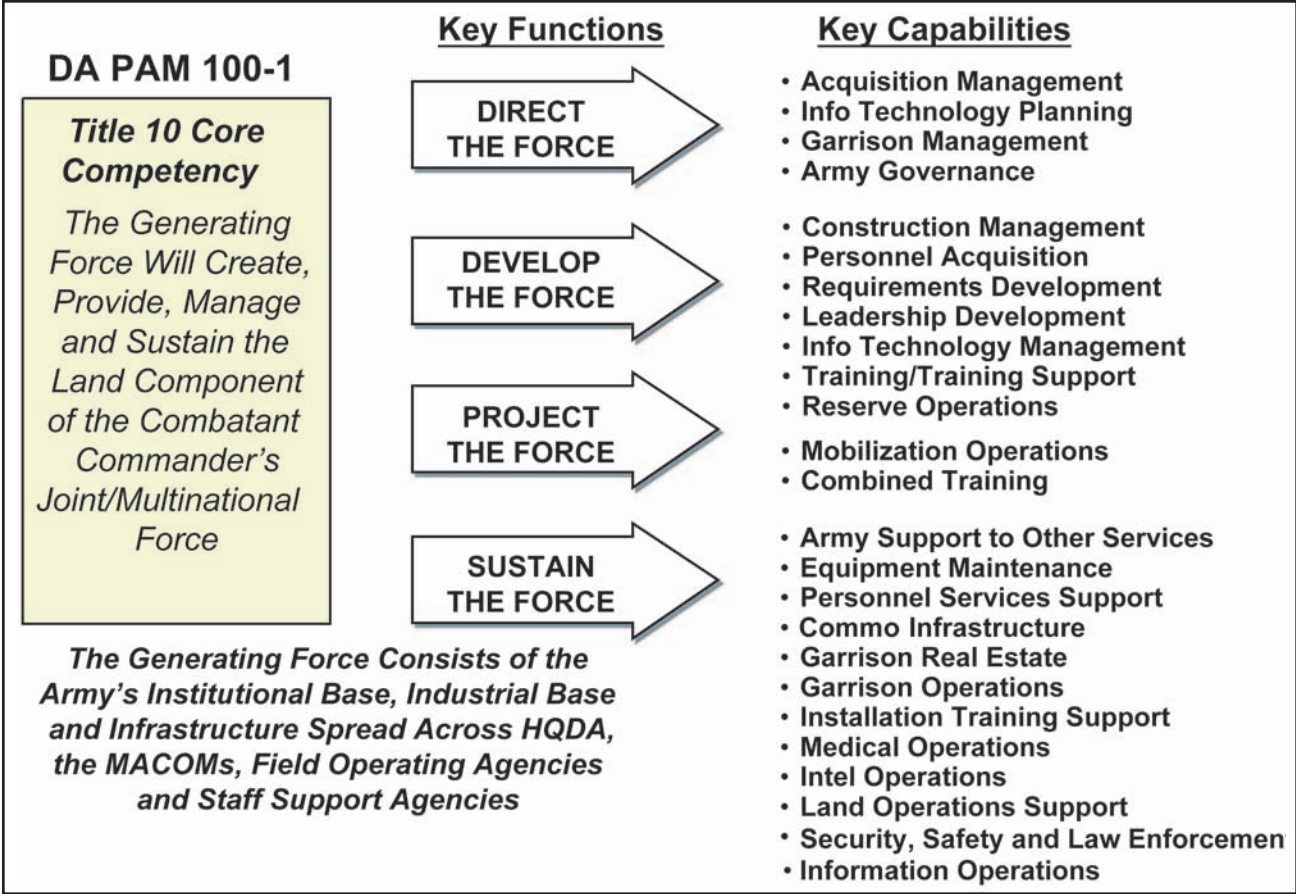


Figure 14. The Army's Generating Force

approximately 20 percent of the total military end strength across all three components.

Redesign of the institutional force is an integral part of the overall Army transformation strategy. In December 2001, the SECDEF announced his decisions on realignment of HQDA. This realignment began the process of transforming the management and command structure that supports the operational Army. The process of institutional Army reengineering continues with the following goals:

- Divest nonessential functions, remove unnecessary layering and duplication, consolidate functions, resource in the most cost-effective manner, and privatize/ outsource functions where applicable.
- Reallocate resources supporting core competencies, and fully integrate those

resources across the Army, other Services and DOD.

- Reduce acquisition cycles by at least half, anticipating the needs of future organizations; complete major acquisitions within three budget cycles.
- Create and sustain a customer-focused learning organization that evaluates itself, eliminates obsolete structures and designs better processes.
- Rapidly create and project an appropriate and capable force to any area of the world.
- Accomplish the reengineered generating force within the Army Vision.

Department of the Army Civilian Personnel

The civilian workforce is a cornerstone of the Army's CONUS-based, power-projection strategy. Civilians are major contributors to the Army's overall mission, occupying vital support positions in all Army operations including depot-level maintenance, supply, combat development, acquisition, training, medical care, research and development, and facilities operations. Department of the Army civilians provide stability and institutional knowledge regardless of the organizational level to which they are assigned, from senior management to administrative support.

With the overall tempo of Army operational deployments and mission requirements increasing, the civilian workforce decline of recent years will be reversed. In an effort to return more Soldiers to the operating force, the Army will convert approximately 6,800 military positions to civilian authorizations in FY05. Additional conversions are planned through FY09. The final structure of the Army's civilian workforce will be determined by decisions cur-

rently under review in support of the Army's transformation strategy.

Conclusion

The Army is a critical component of the joint team at war; we think of ourselves as indispensable and vital members of that team first, and as a Service component second. The Army remains aware that it always conducts operations—offensive, defensive, stability, and support—in a joint and expeditionary context. Prompt, sustained and decisive land combat power acts in concert with air and naval power to ensure a synergy that gives the Joint Force capabilities and power well beyond the sum of its parts. This joint interdependence is best served with the modular brigade-centric forces reorganized from FY04 through FY06 (increasing from 33 to 43). However, the job is not complete at the end of FY06. The Army will decide in FY06 if five additional BCTs are needed in the AC to meet global requirements, and it must continue to reorganize the RC forces into the brigade-centric forces required to support the combatant commanders.

ANNEX C: TRAINING AND LEADER DEVELOPMENT

General

The Army's mission remains to provide trained and ready land forces to the designated joint force commanders to fight and win our nation's wars. This remains a nonnegotiable mission that the Army must accomplish. Our Army is at war with nearly 50 percent of its forces engaged in combat. We will continue to be so for the foreseeable future. Our Army is a proud member of the Joint Force, expertly serving our nation and its citizens as we continuously strive toward new goals and improved performance. The Soldier's training, readiness and welfare are central to all that we do.

The American Soldier remains indispensable to the joint team. Flexible, adaptive and competent Soldiers infused with the Warrior Ethos fight wars and win the peace. The individual Soldier is the centerpiece of our combat systems and formations. Training Soldiers and developing leaders to function effectively in units is central to mission success.

The Army has two core competencies supported by a set of essential and enduring capabilities. The Army's core competencies are: (1) train and equip Soldiers and grow leaders; and (2) provide relevant and ready land power capability to the combatant commander as part of the joint team. The Department of Defense's (DOD's) Transformation Planning Guidance (TPG) states, "*We must transform not only the capabilities at our disposal, but the very way we think, the way we train, the way we exercise and the way we fight.*" We are reexamining and challenging

our institutional assumptions, paradigms and procedures to better serve our nation. The end result of this examination will be a more relevant and ready force—a campaign-quality Army with a joint and expeditionary mindset. Our Army will retain the best of its current capabilities and attributes while developing others that increase relevance and readiness to respond in the current and projected strategic and operational environments.

Army Culture

Army culture is representative of American society as evidenced by the adoption of the seven Army values: loyalty, duty, respect, selfless service, honor, integrity and personal courage. These values play a critical role in shaping the beliefs of Soldiers and leaders. Army culture is internalized over time by its members and is reflected in their practices and beliefs.

Values are a nonnegotiable element of Army transformation. A highly complex, nonlinear battlespace will create situations that may at first appear morally ambiguous. To combat this perceived ambiguity, Soldiers and leaders require a solid foundation and regular training in Army values. This training will ensure that Soldiers and leaders, when confronted with morally uncertain situations, understand what "doing the right thing" means. Army values will continue to be the foundation of our Army culture.

The Warrior Ethos refers to the professional attitudes and beliefs that characterize the American Soldier. At its core, the Warrior

Ethos grounds itself on the refusal to accept failure. The Warrior Ethos requires unrelenting and consistent determination to do what is right and to do it with pride. In whatever conditions Army leaders find themselves, they turn the professional Warrior Ethos into a collective commitment to win with honor. The Warrior Ethos applies to all Soldiers, not just to those who close with and destroy the enemy.

The Soldier's creed serves to unify all Soldiers and leaders in a common bond. It is the key component to the inculcation of the Warrior Ethos. The creed speaks to the heart of every Soldier and leader. It is the touchstone that keeps Soldiers and leaders leaning forward during times of hardship and adversity and the mantra by which Soldiers and leaders live to fight for one another. The Soldier's creed is the common bond that transcends all distinctions but one, what it means to be a Soldier.

Army units operate in battle as part of the combatant commander's joint team. Because we fight jointly, we must think, train, educate and exercise joint. Army culture must embrace its nesting within joint culture. Jointness must be incorporated in every facet of Army culture. Jointness must be a common thread running through all aspects of Army training and leader development.

Future Force

Future Force Soldiers and leaders will form the core of lethal and effective units capable of exploiting information dominance and employing warfighting systems of systems to meet the Future Force operational requirements. They will be highly trained to be strategically responsive, deployable, agile, versatile, lethal, survivable and sustainable across the entire spectrum of military operations. Soldiers and

leaders will be confident and competent, and capable of rapid synthesis and assessment of information and immediate situational understanding.

The Future Force will require units trained to rapidly transition from one mission to the next and conduct mission planning en route while assembling a task organization tailored into force packages for mission execution. Commanders and battle staffs must be trained to see and understand the battlespace. Organizations need to be skilled at the rapid collection and fusion of information from manned/unmanned systems coupled with human intelligence (HUMINT) that enables situational understanding and decisive operations. Commanders and battle staffs must synchronize and integrate joint fires to allow Future Force units to mass effects at the critical space and time.

The training environment will need to approximate the operational environment. Our modernization effort requires transforming initial military training, leader development and professional military education. Additionally, we need to embed training capabilities into our operational platforms and resource the institution to meet reach requirements mandated by the force. Live-virtual-constructive (LVC) training capabilities must be integrated and linked to joint training capabilities. At end state, our Army will employ training capabilities with seamless links between training institutions, home station, combat training centers, and when deployed. By achieving these capabilities, the Army will be able to train, alert, deploy, employ and execute to meet our nation's complex national security requirements. The difference between operations today and Future Force operations is a requirement for greatly enhanced doctrine, training, and leader development (DTLD) capabilities, enabled by improved processes

and an integrated Training Support System (TSS) that supports Soldiers and leaders whenever and wherever required.

Future Force Concepts and Capabilities

Training and developing the Future Force Soldier and leader is derived from an assessment of Future Force warfighting concepts and capabilities. The strategic concepts derived from this analysis are:

- Sustain a doctrine- and standards-based Army
- Be capable of full-spectrum training
- Develop Future Force Soldiers
- Develop Future Force leaders

From these concepts, seven strategic capabilities follow, including:

- Develop technologically enabled, highly responsive, flexible, tailored, dynamic knowledge depositories containing doctrine, tactics, techniques and procedures (TTPs), and training support publications, products, packages and modules
- Embed training tools into operational and institutional system of systems
- Integrate Army LVC training capabilities and link to joint training capabilities
- Make training and training support available on demand
- Link training environments and domains through the infosphere and the Global Information Grid
- Transform initial military training
- Transform Professional Military Education (PME)

Centers and schools of the institutional Army will continue to provide baseline proficiency of Soldiers and leaders assigned to operational units. During initial military training, centers and schools will continue to train new recruits and officers, instilling the Army values and the Warrior Ethos, and preparing them for their operational assignments. During PME, centers and schools will continue to develop leaders through noncommissioned officer (NCO), warrant officer, and officer education programs. Additionally, in times of crisis and need for Army expansion, centers and schools will remain vital to the mobilization requirements of the Army.

The goal of unit training is mission readiness. Field commanders will continue to employ the principles of Army training to ensure proficiency on mission-essential tasks. Training will be standards-based and will prepare units to operate in a joint, interagency and multinational (JIM) environment. The intent will be to provide leaders and Soldiers with a realistic, operationally relevant training capability that can replicate the full spectrum of operations. Meeting these requirements will require an integrated TSS that will link Soldiers and leaders to the centers and schools and the combined training centers (CTCs) through a Global Information Infrastructure (GII).

Training and Leader Development

Leader development is the deliberate, continuous, sequential and progressive process, based on Army values, which develops Soldiers and civilians into competent and confident leaders capable of decisive action. Closing the gap between training, leader development and battlefield performance has always been the critical challenge for any army. In an era of complex national security requirements, the Army's strategic responsibilities now embrace a wider range of mis-

sions that present even greater challenges to our leaders. These operations will include combined arms and JIM considerations.

The Army Training and Leader Development Model identifies an important interaction that trains Soldiers now and develops leaders for the future. Leader development is a lifelong learning process. The three core domains that shape the critical learning experiences throughout a Soldier or leader's career are the operational, institutional and self-development domains. These activities take place within an Army culture bound by distinct values, standards, ethics and the Warrior Ethos. Focused on the Soldier, these domains interact using feedback and assessment from various sources and methods, including counseling and mentoring, to maximize technical and tactical competence and, ultimately, warfighting readiness. Each domain has specific, measurable actions that must occur to develop our leaders.

In the operational domain, leader development is accomplished in units and organizations through individual and collective training at home station, during major training exercises, through CTC program participation, while conducting full-spectrum operations, and through the mentoring received at every level of command. In this domain, leader development is facilitated by individual com-

mitment and chain of command support to self-development, and filling gaps in leader knowledge, skills and abilities as identified through individual and chain-of-command assessment and feedback systems.

The institutional domain provides standards-based training and education from individual through collective training. Instruction for current and future leaders will instill them with a Warrior Ethos and a common doctrinal foundation. Institutional training focuses on educating and training Soldiers and leaders on the key knowledge, skills and attributes required to operate in any environment. It includes individual, unit and joint schools and advanced civilian and military education.

The self-development domain is a standards-based, feedback-driven program of activities and learning that contributes to professional competence, organizational effectiveness and personal development. It is a program driven by the individual and the mentoring of superiors. This includes individual and organizational assessment and feedback programs in the operational and institutional domains linked to self-development activities. Throughout this lifelong learning and experience process, there are formal and informal assessments and feedback of performance to prepare leaders for their next level of responsibility. Assessment is the method used to determine

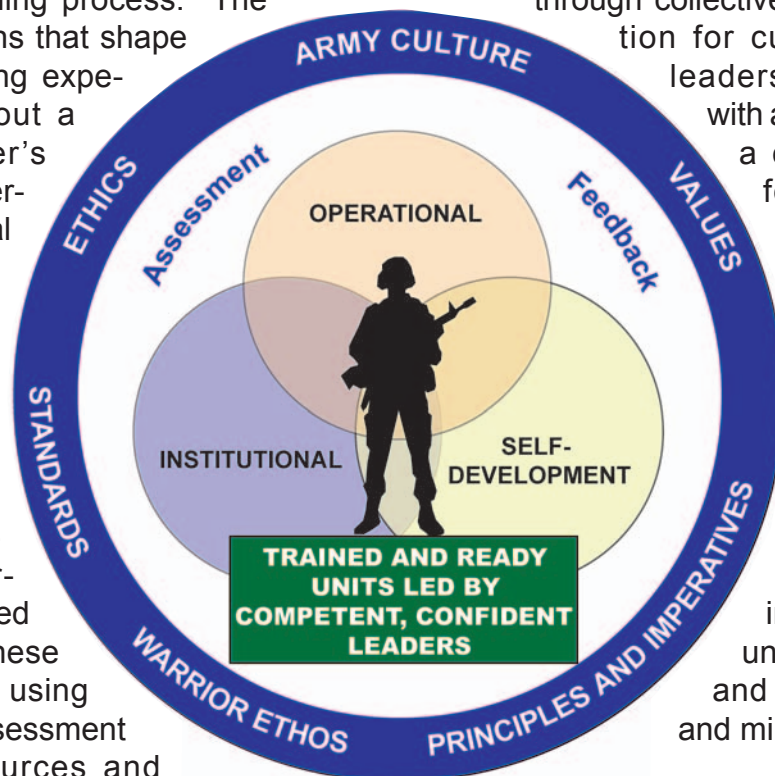


Figure C-1. Leader Development

the proficiency and potential of leaders, and the feedback must be clear, formative guidance directly related to the outcome of training events measured against standards.

One mandate of Army transformation is to ensure the link between training and leader development is well understood in order to prepare Army leaders for full-spectrum operations. Linking these two fundamental obligations commits the Army to training Soldiers and civilians while developing them into leaders. Training and leader development is a team effort and the Army has a role that contributes to force readiness. For example, the institutional Army, which includes schools, training centers, combat training centers and PME programs, trains Soldiers and leaders to take their places in Army units by teaching doctrine TTPs. Other examples are operational deployments and major training opportunities such as CTCs, CTC-like training, and mission rehearsal exercises (MREs)/mission readiness exercises (MRXs). They provide rigorous, realistic, and stressful training and operational experience under actual or simulated conditions to enhance unit readiness and produce bold, innovative leaders.

Department of Army Civilians

Army civilians are committed to the Army, seek training and development opportunities and desire good leadership. The future targets civilians with more responsibility and in greater leadership roles in our transformed Army as more military positions in the institutional Army are civilianized. This mandates a robust civilian leader development program, which is directly linked to readiness.

To ensure Army civilian training, education and leader development is a high priority, proponentcy for civilian leader development transferred to G-3 and a civilian leader development division was created. The mission of

the division is to ensure the Army provides training, education and operational experiences to develop leader competencies and enhance capabilities of Army civilians in support of Soldiers, the Army and the nation. The division monitors the implementation of the Army Training and Leader Development–Civilian Implementation Plan for pace of completion, senior leader involvement and funding. G-3 proponentcy for civilian leader development will bring about a significant change in Army culture as we move to greater integration of civilians within the uniformed force. The oversight of the training of civilian leader development and related policy issues dictates that the G-3 remains cognizant of all issues and actions that impact Army training. This transformation, like the overall Army transformation, will take time and will continue to evolve.

TRADOC remains the executive agent for the development of an education system integrating civilian and military individual training, education and development, where appropriate, that will lead to the implementation of a Civilian Education System (CES). The CES will include other requirements such as: develop a structured, progressive, sequential approach; broaden the targeted civilian educational training base; develop leader training and education that supports civilian leaders career path requirements and professional development; and establish lifelong learning and self-development as integral parts of all civilian training programs. The design, resourcing and implementation of the CES are the major supporting elements in the implementation of the desired civilian leader development end state.

These changes will insure that the Army will have the trained, competent and confident civilian leaders it needs to support the Army mission, readiness and other requirements of the 21st century Army.

Professional Military Education

The Army requires Soldiers and leaders, steeped in the warfighting capabilities and doctrine, to be knowledgeable and experienced in how to analyze the ability of their units to operate and sustain themselves on the battlefield. Warfighting modules will teach leaders standard U.S. Army techniques and procedures for tactical decision making and the tactical employment of companies, battalions and brigades in combined arms, full-spectrum operations. Warfighting training will be tactically focused, hands-on and execution-oriented, and will culminate with an exercise that stresses and develops the leaders' ability to rapidly make decisions and to apply the elements of combat power within the operational framework of full-spectrum operations. The intent of the warfighting curriculum is to produce leaders who are highly skilled in combined arms maneuver, support and sustainment of companies, battalions and brigades as part of the joint team.

Officer Education System (OES)

The Officer Education System (OES) is being adapted to meet the needs of the transforming Army and the realities of the contemporary operating environment (COE). We have begun to adapt instructions to include the new operational environment and will gradually expand this to incorporate all programs of instruction (POIs) and training scenarios. The Army requires leaders who are able to manage training in order to prepare their unit for operations. Leaders must understand the development of a Mission Essential Task List (METL) as well as the entire Army training management cycle and the other tenets set forth in *FM 7-0, Training the Force*, and *FM 7-1, Battle Focused Training*.

Basic Officer Leader Course

The Basic Officer Leader Course (BOLC) incorporates recommendations from the Army Training and Leader Development Officer Panel and the OES Needs Analysis Study. It transforms precommissioning and officer basic courses to better prepare second lieutenants to achieve success in the COE immediately upon arrival in their first unit. The objective is to develop technically competent and confident platoon leaders grounded in leadership and field craft, regardless of branch, who embody the Army values and the Warrior Ethos and who are physically and mentally strong. To achieve this objective, BOLC capitalizes on experience-based training, logically structured to build upon and reemphasize previous lessons learned.

Phase I (Precommissioning). The traditional commissioning sources are revising their curricula to train and educate the majority of performance tasks (basic Soldier and leader skills) commonly performed by all lieutenants. Each officer candidate or cadet, regardless of commissioning source, will be trained using the same standards and POIs. They will be steeped in the values and traditions of the Army, and will possess a clearer knowledge of what it means to be an officer.

Phase II (Experiential Leader Training). Upon graduation/commissioning, lieutenants attend the second, branch-immaterial phase of BOLC. This course is physically and mentally challenging, with 84 percent of the training conducted hands-on in a tactical or field environment. The platoon is the focal point for all activities, as each student is evaluated in a series of leadership positions under varying conditions/situations. A highly trained cadre of officers and NCOs continuously assess and counsel the performance of each student. Officer students also participate in several

peer reviews and self-assessments. The curriculum includes advanced land navigation training; rifle marksmanship; weapons familiarization; practical exercises in leadership; chemical, biological, radiological and nuclear (CBRN) operations; and use of night vision equipment. It culminates in squad and platoon situational-training exercises using COE scenarios (including urban terrain). Students also complete several confidence courses containing obstacles that challenge students to overcome personal fears. Lieutenants depart BOLC II with greater confidence, an increased appreciation for the branches of the combined arms, and a clearer picture of their personal strengths and weaknesses. To date, four highly successful pilot courses have been conducted.

Phase III (Branch Specific Training). After gaining confidence in their abilities to lead small units, these officers are prepared to learn the specialized skills, doctrine, tactics and techniques associated with their specific branch. Upon graduation, officers will proceed to their first unit or attend additional assignment-specific training (airborne, Ranger, language school, etc.).

Curriculum refinement for the BOLC pilot program will continue in FY05, reflecting the needs of the Army and recommendations from graduates. When implemented, BOLC will provide the institutional training and education required to develop the high-quality officers needed to lead the Future Force.

Captains Professional Military Education (PME) is being redesigned based on the feedback from numerous surveys. Currently, captains' career development is not meeting the needs of the professional company grade officer. Analysis of the data indicates that emphasis is needed on assignment-tailored training focusing on specific primary staff

positions, realistic scenario-driven command training, and minimal time away from the family. Future captains' PME will be a change from the current six-month model and will feature:

- Company command and staff competencies
- Branch and combined arms focus
- Linked to next duty assignment
- Introduction to joint operations
- Digital skills
- Knowledge and application-based instruction
- Leverage learning technologies
- Less than six months in length

The reevaluation of captains' OES requires branches to update task analysis of all company commander and staff officer positions. This is leading to the validation and quality assurance of all present officer advance courses and the updating of their terminal learning objectives (TLOs). The end state is a captains' OES that prepares captains for their next job, making them more productive and adding to a positive working environment. The method of instruction is being redesigned to give a realistic, hands-on experience to stimulate better recall during all situations, most importantly in a combat environment.

Intermediate Level Education (ILE) consists of two phases: the core curriculum course and the qualification course. The core course is a 13-week military education level (MEL) 4 awarding course (similar to term I of Command and General Staff College (CGSC)) for officers in the four career fields. A 28-week qualification course (similar to terms II and III of CGSC) is being developed by CGSC

for officers in the operations career field. Each functional area (FA) in the other three career fields will conduct individual qualification courses ranging from two to 178 weeks in length. The core course provides Army officers a common MEL 4 education and Joint Professional Military Education (JPME) I credit; qualification courses prepare officers for duties in their respective career field or FA. International military students (IMS) will continue to join their U.S. counterparts in most OES and ILE courses (core and FA).

Warrant Officers Training and Education

Our warrant officers are highly specialized, small-unit leaders and trainers who serve their entire careers honing technical and tactical skills. As our senior leadership changes and technology advances, warrant officers provide the essential continuity for these transitions. The COE and full-spectrum operations require a fully integrated officer corps ready to meet the challenges of the Current and Future Forces. To fully exploit the unique capabilities of this cohort, the Army must complete the full integration of warrant officers into the officer corps.

Central to this concept is the creation of a single OES for all Army officers. This OES will include the technically specific elements of warrant officer training and education, rather than maintaining a separate, stand-alone Warrant Officer Education System (WOES). This integrated education system must develop and implement nested training opportunities, and investments in infrastructure and educational technologies, and staff and faculty. We will begin this process by developing a combined pre-appointment and precommissioning training course for all officer and warrant officer candidates, producing officers bonded and grounded in the common fundamentals of officership, capable of

small unit leadership, and possessing sound conceptual and interpersonal skills. Newly appointed warrant officers will continue to receive warrant officer specific training to attain and sustain the technical competencies and balanced leadership skills required by each branch. Assignment-oriented training and education opportunities will be expanded to prepare our warrant officers for the unique assignments that may lie outside their normal specialty or that are above their grade.

A comprehensive, systematic needs analysis, job analysis and critical individual task analysis of warrant officer training and education will be completed in accordance with the systems approach to training process to determine the training and education requirements by branch, specialty and grade.

NCO Education System (NCOES)

Soldier and leader competency is the center of gravity for our Army. A critical near-term task is to transform our NCOES to insure it develops the competent and adaptive leaders required in a more complex and uncertain environment. While the current NCOES is not broken, the world and the Army are changing. NCOES will therefore also change. NCOs will continue to be the masters of leader tasks for their respective levels of responsibility and of individual and small-unit training; they will continue to be the recognized experts in field craft, basic marksmanship, Soldier care and technical skills. In addition to these traditional skills, the Army will develop NCOs who can master new information quickly, adapt to rapid mission changes, and take advantage of opportunities on the battlefield. Our educational system will train the right tasks at the right levels and will prepare the NCOs to operate in both the analog and digital environments. In developing a future NCOES, we will look at three critical areas:

Infrastructure. Future strategies for infrastructure will address combining both Active Component (AC) and Reserve Component (RC) OES/NCOES training events. The use of RC training infrastructure will leverage AC/RC training by providing more locations by reducing distance and travel cost for Soldiers. Our capabilities will also fully leverage the LVC learning environment to provide the right training, at the right place and right time in a Soldier's learning path. Our infrastructure will move us from place- and time-based learning strategies to a strategy that pushes training to the Soldier any place and any time it is needed.

Faculty. Changes in learning strategies and the incorporation of new technologies require our NCOES faculties to learn new skills. Each member of an NCO academy and proponent school cadre will master the use of technology and understand how to develop both live and virtual collaboration skills in their students.

Curriculum. The Future Force Soldier will operate in an intent- and network-centric environment requiring enhanced thinking, learning, and decision-making skills that allow them to act decisively based on the commander's intent and good situational awareness. The instructional design of NCOES will become more experiential and problem-solving oriented. Our overall design for professional development will include the integration of shared training opportunities between officer and NCO development systems. As the Army evolves to meet full-spectrum operational requirements, expectations of the NCO corps will increase and the tasks normally associated with more senior NCOs will migrate downward. We will also begin to develop NCOs who are competent battle staff NCOs at the staff sergeant (SSG) level, and continue to grow and refine those skills

at the sergeant first class (SFC) and master sergeant (MSG) levels.

Primary Leader Development Course (PLDC)—Educating the Sergeant. The sergeant is the primary first-line leader for our Soldiers. PLDC is the developmental experience that transitions the Soldier to becoming an NCO. Feedback from the Army indicates the current PLDC is not sufficiently performance-oriented. A new POI addresses that concern. We will field a course of instruction that:

- Is more experiential-/performance-oriented
- Has a clearer focus on the NCO's responsibility to lead and train
- Emphasizes the "be and do" aspects of NCO leadership
- Emphasizes troop-leading procedures and field craft
- Provides the NCO with the capability to actively participate in the after action review (AAR) process
- Is more challenging with numerous problem-solving situations
- Teaches self-development and stresses developmental counseling, goal setting and linkage to training in course POIs

Basic NCO Course (BNCOC)—Educating the Staff Sergeant. At the SSG level, we will continue to develop leaders who are masters of their military occupational specialties (MOSSs) as well as expert trainers and training managers. At this level, we will continue to focus on leading and training inside the platoon formation and providing the initial exposure to core staff skills needed inside the battalion formation. We will provide SSGs training on:

- Common and MOS-specific skills
- How to lead and train the squad and section
- Performance-based learning using the concept of leader labs
- A clearer focus on leading and training within platoons and squads
- Enhanced MOS technical and tactical skills
- Multi-echelon, shared training events with other ranks
- Exposure to staff skills needed in the battalion and brigade tactical operations centers (TOCs)

Advanced NCO Course (ANCOC)—Educating the Sergeant First Class. At the SFC level, the focus needs to expand from MOS-specific training to the battlefield operating system. The focus becomes leading and training inside the company formation and expanding the NCO's staff skills to those needed inside the brigade formation. The officer-NCO relationship receives more attention at this level. At this level, we will train the SFC on:

- MOS-specific skills
- How to lead and train the platoon
- Expanded battle staff skills at the battalion and brigade levels
- Leading and training inside the company and platoon formation and the relationship to the company team and battalion task force
- A broader understanding and capability beyond the specific MOS
- More multi-echelon, common/shared training events with other ranks

- Skills, knowledge and attributes (SKA) that foster conceptual thinking and reasoning
- Focus on officer-NCO relationship inside the company/battery/troop

Educating the Master Sergeant and First Sergeant. Today, the NCO does not receive any formal training between the ranks of SFC and MSG. In the past, two functional courses, First Sergeant Course and Battle Staff NCO Course, have attempted to fill this void. Since neither is tied to promotion and not all NCOs attend, many newly promoted MSGs must learn to succeed at their new rank the hard way. Based on their MOSs or assignment, these NCOs would also take one or more of three additional tracks of technical, first sergeant, or staff skills.

Sergeant Major Course (SMC)—Educating the SGM/CSM. The capstone of NCOES continues to be the Sergeant Major Course. However, some of the same deficiencies mentioned about PLDC are also true of the current SMC. Teaching by briefings will be replaced by problem-solving activities, where students learn by doing. Training for the SGM/CSM will include:

- Battle staffs inside the Brigade Combat Team
- How the Army runs
- Sister Services' roles and missions
- Operations within a joint context
- How to lead and train at the battalion level and above
- Team building and building high-performance teams
- Command team relationships

- Training and education on both analog and digital operations
- Leading complex organizations/group dynamics
- More performance-based simulation and simulation-driven exercises to explore full-spectrum operations

Army Distributed Learning

Distributed Learning (DL) is the delivery of training to Soldiers and units through multiple means and technology. DL allows students, leaders and units centralized access to essential information and training. It represents a powerful capability in which the proper balance of course content and delivery technologies are provided when and where they will have the greatest impact on force readiness.

The Army Distributed Learning Program (TADLP) is a Department of the Army (DA) program that was approved for implementation in 1996. TADLP is funded in FY98-10 to field DL classrooms and convert selected Army courses to DL delivery media. The mission of TADLP is to improve training, enhance force readiness and support Army transformation by exploiting current and emerging technologies to facilitate the development of self-aware and adaptive leaders through lifelong learning and the delivery of the right training and education to the right Soldier and leader at the right time and place. The TADLP Campaign Plan contains the requirements, policies and management tasks to ensure the program's support of Army readiness.

Infrastructure. TADLP is an approved Army acquisition program that is integrated with the Army National Guard (ARNG) Distributed Training Technology Project (DTTP). The DTTP is a congressionally directed assis-

tance program with an acquisition component. TADLP and DTTP complement each other but have different missions and objectives. TADLP focuses on military readiness training for AC and RC forces. The DTTP supports and extends TADLP's military readiness training goal while also supporting multiple ARNG missions to include command and control of state Guard units, and providing shared community access to electronic technology.

Courseware. Selected courses are being redesigned to provide DL training phases/modules. These courses will allow students to participate in both synchronous and asynchronous multimedia training. Selection of courses for DL redesign is based on Army readiness requirements and high-level interest of the senior Army leadership. Under the current plan, over 525 courses will be redesigned for DL delivery by FY10.

Classroom XXI Program (CRXXI). Although separate from TADLP, CRXXI provides training modernization that enhances the TADLP Digital Training Facility (DTF) at Army resident schools. This program improves training provided through the schools and allows the broadcast of training to remote TADLP/DTTP DTFs. In addition, CRXXI establishes Army standards for courseware development and playback, instructional technology capabilities that are Soldier-centered, and design and architectural standards for classrooms. CRXXI is scheduled for completion by the end of FY09, with a total of 270 classrooms to be fielded.

Self-Development

The Army must have Soldiers and leaders who continually seek to improve their knowledge, skills and abilities. Self-development initiatives contribute to a leader's develop-

ment by focusing on maximizing strengths, minimizing weaknesses, and ensuring that professional and personal goals, needs, and objectives are realized. Self-development is a continuous, career-long process. It takes place during institutional training and development and during operational assignments and should stretch and broaden the leader beyond the job or training requirements. Self-study, professional reading programs, and civilian education courses support the individual's developmental goals. Self-development supports the requirement for all leaders to be self-aware—to know their strengths and weaknesses in order to take the necessary steps to improve their skills, leadership and attributes.

The focus of self-development is twofold: to fill individual Soldier or leader training, experience and education voids; and to ensure the Soldier meets personal and professional goals. The individual self-development portion of the leader development program is a joint venture between the individual and his or her chain of command.

Self-development is empowered by individuals' acceptance and commitment to lifelong learning wherever they are located. Lifelong learning fills knowledge gaps and provides greater depth and breath of knowledge that educational and operational experiences do not provide. The single most critical element of lifelong learning is feedback. Feedback sets the basis for increasing self-awareness and identifying individual Soldier and leader developmental needs. This strategy must integrate training and education content and materials with operational experiences, assessments, and feedback to ensure effective learning of required skills, knowledge, and attributes.

Operational Assignments

Home Station Training

Home station (installations, ARNG armories, Reserve centers) is the physical location of the majority of training and plays a key role in the training environment. Our goal is to provide units the ability to train at home station to standard and to a CTC-like fidelity. Many things that are currently only executed at the CTCs may be trained at home station in the future. Home station is where individual skills are honed; it is where unit readiness and cohesion are formed. In light of the "ready now" readiness construct and the train and ready phases of the life-cycle manning model, home station training cannot be sub-optimal. The critical training events and task training that units need to accomplish must be supported with the correct mix of training enablers—embedded training, ammunition, TADSS, instrumentation, live-fire ranges and maneuver training areas at home station.

Units must be prepared to deploy with units stationed anywhere in the world. Early deploying units will plan training based on a train-alert-deploy-execute model. Home station training gives leaders the opportunity to practice and gain competency and proficiency while reinforcing knowledge learned in the institutional training base.

The Army exists to provide trained and ready forces to combatant commanders. The commander is primarily responsible to ensure his unit can perform directed missions. When given a directed mission, the commander adjusts the unit's core (wartime/designed) METL and focuses training on the directed mission. In the absence of a directed mission, the commander prepares his unit to perform those core METL tasks that enable his unit to respond to missions from across the range



Figure C-2. Soldier and Leader Development

of military operations in the contemporary operating environment. Army-approved training strategies for different types of units (i.e., combined arms training strategies and Army weapons training strategies) enable the commander to train on mission essential tasks by defining the training events that the Army will support with resources. Life-cycle units, in particular, closely follow Army-approved training strategies during their train-up period to ensure the unit builds proficiency and is validated for deployment/employment within requisite time lines.

Joint Training

Contemporary operating environments increasingly require seamless integration of JIM operating elements. Army leader development and training programs, which are being executed more in a joint context, are incorporating broader knowledge and perspectives. The end state will be Army leaders who demonstrate the values, character, competency and confidence to lead Soldiers, sailors, Marines, airmen and coastguardmen in any mission. In addition, Army leaders will be able to successfully participate in coalition operations throughout the world.

Using commonly shared TTPs, units will be able to adapt to an operational environment that includes government, nongovernmental organizations (NGO), private volunteer organizations, and Special Operations Forces (SOF). When required by assigned missions, the training of Soldiers, leaders and battle staffs will incor-

porate consideration of JIM and SOF planning, command and control and execution. Home station and deployed training capabilities will provide Soldiers, leaders and battle staffs with the means to conduct full-spectrum operations (to include the integration of SOF) in a JIM environment.

Training While Deployed

Our Soldiers, leaders and units must have the capability to train while deployed to sustain operational readiness and/or train new tasks as required by the mission. Our training support systems must be built to support the home station training strategy, training at the combat training centers, and for mission planning and rehearsal while deployed. The embedded training system design for the Future Force systems will go a long way in meeting these requirements. In the meantime, the Army must provide training support and kits in support of current operations in Iraq, Afghanistan and Bosnia. This could include range targetry, Multiple Integrated Laser Engagement System (MILES), mobile military operations in urban terrain (MOUT), engagement skills trainers, virtual simulations

and other training aids, devices, simulators and simulations (TADSS).

Combat Training Centers

The CTC program comprises the Battle Command Training Program (BCTP), Combat Maneuver Training Center (CMTC), Joint Readiness Training Center (JRTC), and National Training Center (NTC), and inte-

including offensive, defensive, and stability and support operations against a freethinking and adaptable opposing force (OPFOR). The battlefield will be arrayed in-depth to maximize stress on digital C4ISR systems. Complex terrain including MOUT operations will be a part of each rotation. SOF operations will be integrated throughout the rotation as well as realistic combat service support (CSS) play to stress the logistics structure.

Instrumented feed-back for both formal and informal AARs will facilitate sharing of lessons learned to home station, institutions and deployed units. Deployment training will remain a paramount aspect of CTC training to include realistic time-phased force deployment data (TPFDD) flow. The Army fully supports the JNTC where joint integration will become the norm. Finally, expanding global

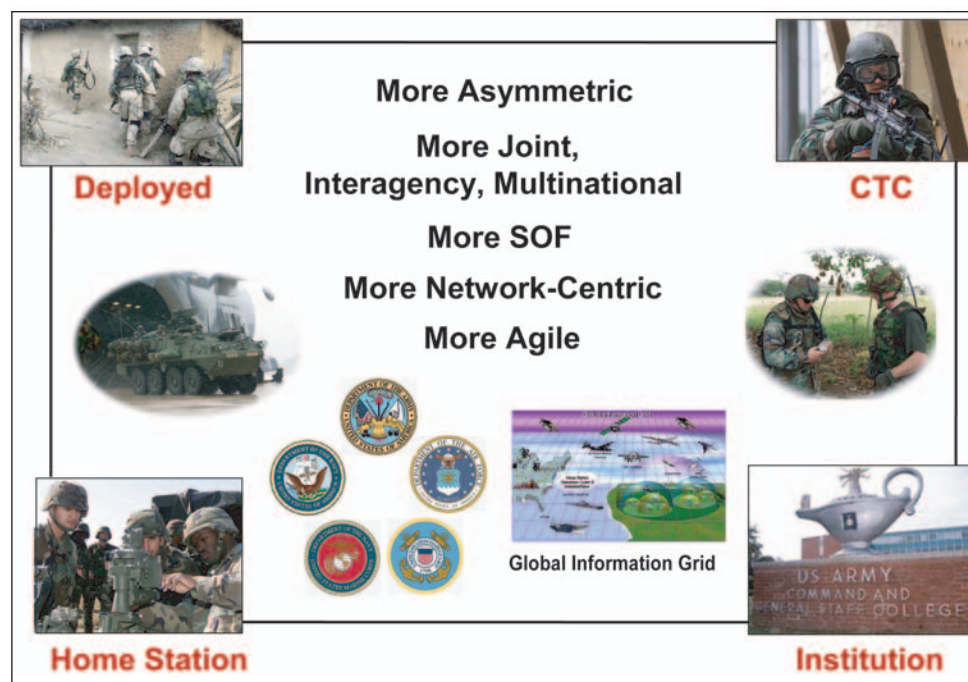


Figure C-3. How We Will Train in the Future

grates training with the Joint National Training Capability (JNTC). The CTC rotations remain the Army's capstone training events for battalions and brigades, divisions and corps. Their focus remains leader development and readiness. The primary purpose of the CTCs is to develop self-aware, adaptive leaders and ready units for full-spectrum JIM operations. CTCs will accomplish this by integrating a contemporary and joint operational environment into all training. This environment will include simultaneous, noncontiguous and continuous operations in a distributed, global, LVC training capability under a JIM context. Army units will get a rigorous fight in the COE

reach of the CTCs will be necessary to rapidly respond to future training challenges to support units preparing for or in combat. As a result, the Army will explore exportable CTC capability with deployable instrumentation and AAR enablers to support a joint expeditionary mindset.

Training Modernization

As the Army reorganizes into the modular units and fields new equipment, training transformation must keep pace, ensuring our Soldiers and leaders can train and maintain the high level of readiness that these new

organizations and our National Military Strategy demand. Training transforms people, equipment and organizations into a capable unit. Training modernization provides commanders with the enablers required by the Army Training Strategy to execute training to standard, anytime and anywhere. The Army's training modernization efforts are synchronized with the Army Campaign Plan to ensure enablers are relevant and support all current and future efforts.

Training Support System (TSS)

The TSS, generally described in FM 7-0 and FM 7-1, represents the concept for how training enabler resources support the Army Training Strategy, the Combined Arms Training Strategies (CATS), and the execution of training in both AC and RC units while at home station, deployed or at the combat training centers. TSS also describes how enablers support Soldier training in the institutions. More formally, it has been described as a system of systems that provides the networked, integrated, interoperable training support capabilities that are necessary to enable operationally relevant JIM training for Soldiers and units anytime, anywhere. TSS is inextricably linked to the execution of training by providing the training products and services across domains (operational, institutional, self development) to meet the challenges of training an Army, with a joint and expeditionary mindset undergoing transformation.

Training Support System Products are those tangible, enabling training capabilities that directly support the execution of Soldier, leader and unit collective training at home station, the combat training centers, and while deployed as well as the enablers that support Soldier training in the institutions. They include TADSS, ranges, training facilities and training support infrastructure. These

products are required by the Army Training Strategy and the CATS to support the execution of training tasks.

Training Support System Services provide the management and support structure associated with the delivery, operations and maintenance of the training support system products wherever training is conducted. It includes the MACOM and garrison personnel and management systems required to conduct range operations and maintain training land; the training managers, operators and technicians required to support the operations of simulation and simulator facilities; and training support centers and the contract logistic support to sustain the fielded training products. It also provides the means for the integration of products to interoperate in a common training environment.

Training Architectures provide the means to ensure integration and interoperability across TSS product lines and with complementary systems.

Live-Virtual-Constructive-Integrated Architecture (LVC-IA). An LVC-IA Initial Capabilities Document that delineates current and future required training capabilities has been approved by the Army Requirements Oversight Committee (AROC). The AROC officially validates the requirement and initiates the DOD acquisition process. It is anticipated LVC-IA will have joint implications and is expected to proceed to the Joint Staff for review and approval by the Joint Requirements Oversight Council (JROC). The LVC-IA is a critical capability to train the current and future force and is required by DOD Training Transformation to support the JNTC.

Common Training Instrumentation Architecture (CTIA) is a component-based architecture that uses common standards,

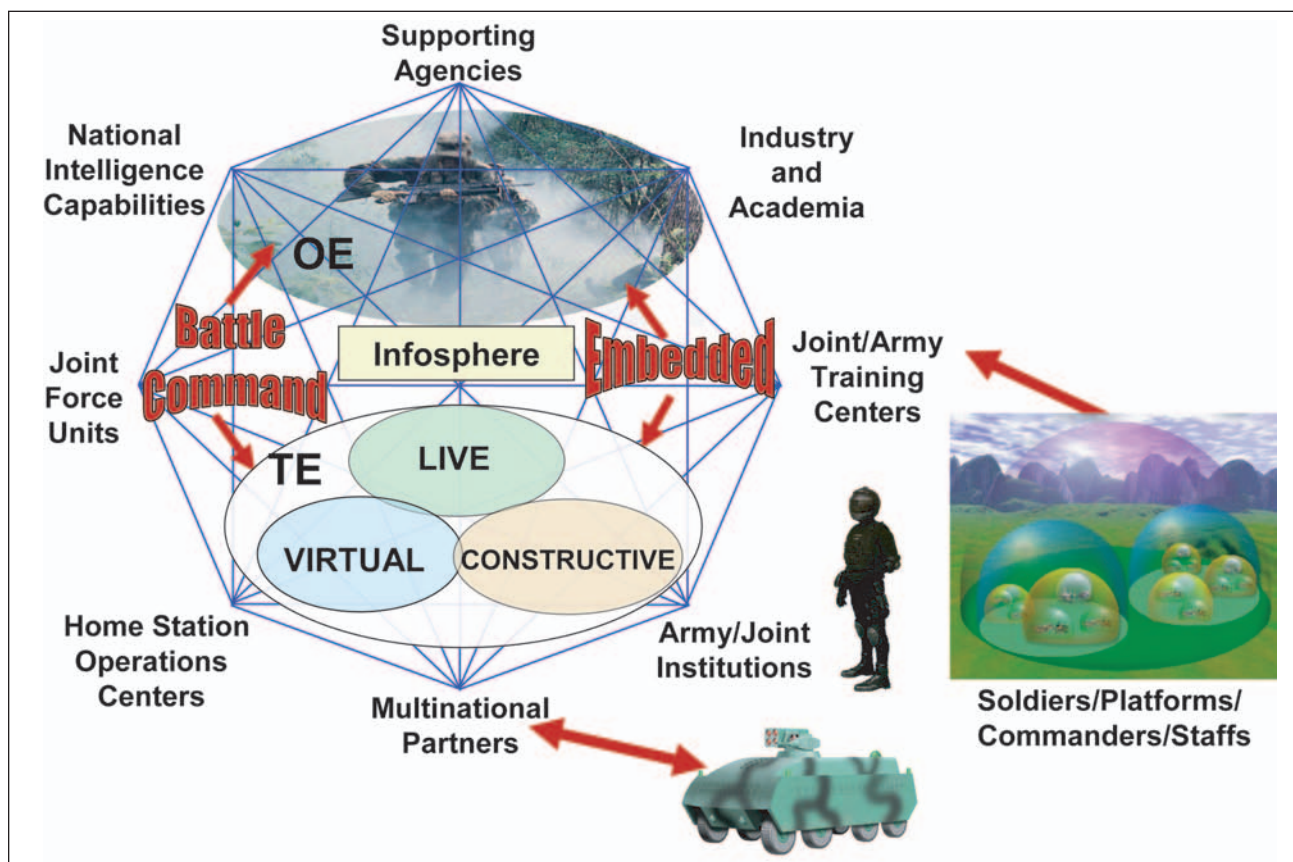


Figure C-4. Future Training Environment

interfaces, and protocols with other Synthetic Training Environment (STE) training systems. Along with OneTESS, CTIA provides the foundation of the Army's Live Training Transformation (LT2) product line for training instrumentation systems that support home station (DMPRC, MOUT, force-on-force, etc.), deployed and maneuver CTC live-training requirements. CTIA's common, component-based architecture approach ensures cost-effective modernization in support of digital current and Stryker training instrumentation systems and will evolve to support the Future Force's training requirements. CTIA is the underlying architecture of the LT2-FTS, and it supports Training Transformation (T2).

Army Training Information Architecture (ATIA) is an integrated suite of web-based training applications—DITSCAP-certified at Level 3—that supports the development,

storage and delivery, and management of training and training products. Major components of the system currently include the Soldier's Training Homepage, Reimer Digital Library, Training and Doctrine Development Tool (TDDT)/CATS development tool, and selected training resource management and unit training management capabilities. ATIA components to be developed in FY05 include the Distributed Learning Management System (developed by PM DLS, it replaces the current interim Learning Management System) and the Unit Training Management Configuration (Training Management Toolbox).

Sustainable Range Program (SRP)

Live Training, carried out effectively to a high-doctrinal standard, is the cornerstone of operational success. To ensure mission success, units practice performing mission

essential tasks with the systems they must operate, under the conditions they must operate, with other units with whom they must operate, and against a force comparable to that which they will face on the battlefield.

It is essential to maximize the capability, availability and accessibility of ranges and training land to support doctrinal training, mission rehearsals and deployment training. The Army's Range and Training Land Strategy establishes priorities for investments in the transformation of ranges and training land to support the COE and Future Force. This strategy reflects Army training priorities and serves as a common roadmap to the MACOMs that carry out the Army's training missions, and the Installation Management Agency (IMA) that manages range and training land infrastructure in support of those training missions. Key range transformation initiatives, which include the Digital Range (both DMPRC and DMPTR), Battle Area Complex (BAX), and New Generation Army Targetry Systems (NGATS), are the first range products capable of supporting training the Future Combat Systems (FCS) weapon systems and maintaining the edge for current weapon systems. The instrumentation of the ranges, such as the DMPRC and BAX, is the critical step in testing the networked systems of the FCS Unit of Action. These specific Current Force ranges will evolve to the Future Force range concept being developed by TRADOC. The successful implementation of FCS live training is accomplished when the sharing of information in the FCS sensor array allows for the precision targeting and grouping of precision fires.

Army Targetry Systems (ATS)/New Generation Army Targetry Systems (NGATS). ATS provides nondigital, live-fire ranges that incorporate infantry and armor targets, both stationary and moving. ATS portrays realistic

threat target scenarios to the Soldier under simulated battlefield conditions. NGATS is the future Army ground targetry system that will provide high-fidelity target signatures, evasive targets, shoot-back capability and remote scoring. Using COTS technology, NGATS will provide a more reliable system at lower cost. The NGATS will be mobile, transportable, deployable and capable of continuous support during designated training periods. ATS supports modular force conversion and the global war on terrorism pending NGATS fielding. Once fielded, NGATS will be used to equip all ranges.

Air Defense Artillery (ADA) Targets provide targets and ancillary devices for ADA live-fire crew weapon qualification and training events currently resourced under the Standards in Training Commission (STRAC). They provide required training and opportunity training to the air defense Soldiers for gun and Stinger missile live fire.

Instrumented/Digital Ranges. The Instrumented/Digital Multi-Purpose Training Range and Range Complex provide modern ranges capable of training and stressing today's Soldiers and their digital equipment with a realistic train-as-you-fight environment, using all available combat systems capabilities, and digitally integrating those systems to manage all forces undergoing individual and collective live-fire training and qualification. DMPRC provides Table XII platoon qualification and company CALFEX; DMPTR provides Table VIII crew qualification. Battle Area Complex (BAX) is a training range designed to support the Brigade Combat Teams (BCTs). The BAX will provide the BCT commander with a venue to train the majority of his force in one or a combination of linked training facilities. While the layout is typically to support combined arms training scenarios, the individual and crew requirements were incorporated to allow specific weapons platform qualification.

Instrumented/digital ranges are part of the Live Training Transformation-Family of Training Systems (LT2-FTS) and support modular force conversion.

Integrated Military Operations on Urbanized Terrain Training System (I-MTS) provides a melding of three separate but similar thrust efforts into a single program. These programs are the transition MOUT sites, the Combined Arms MOUT Task Force training sites, and other MOUT facilities. The program reduces acquisition and sustainment costs, leverages technologies and acquisitions, solves complex and common problems, fosters Horizontal Technology Integration (HTI) through commonalties and standards, synchronizes and integrates the collective efforts of the CTIA by leveraging near-term requirements, and supports the objectives of the Urban Operations Training Strategy. Integrated-MOUT Training System (I-MTS) is part of the LT2-FTS.

Battle Effects Simulator (BES) is a propane-charged firing system without pyrotechnics. Characteristics include 35 shots minimum per charge, excellent thermal signature and versatile audio-visual effects simulator. It can be configured as a weapon firing or a hit effects simulator.

Precision Marksmanship provides for enhanced individual weapons proficiency training in the institutional base and in units. Specific individual weapons type ranges are provided with precision-scoring capability to support basic and specialized skills. The precision marksmanship system supports modular force conversion and the global war on terrorism.

Aerial Weapons Scoring System (AWSS) provides a live-fire qualification capability

for attack helicopter units. The AWSS is an integrated group of computer-controlled sensors used to score live-fire helicopter gunnery exercises at designated gunnery ranges. AWSS provides near real-time objective scoring results of live-fire exercises conducted from attack helicopters firing .50-caliber, 7.62-, 20- and 30-mm projectiles, and 2.75 inch training rockets. The AWSS also has the capability to objectively score simulated Hellfire missile engagements for helicopters equipped with the Hellfire training missile and laser designator. AWSS supports modular force conversion.

Deployable Range Packages (DARP) for specific units, to construct live-fire training infrastructure in theater, and Training Augmentation Range Packages (TARP) for MACOMs, the IMA and theaters to adapt to changing live-fire training standards driven by the COE.

Soldier/Leader Training Support

Multiple Integrated Laser Engagement Systems (MILES) replacement provides tactical engagement simulation for direct-fire, force-on-force training using eye-safe laser "bullets." MILES training has been proven to dramatically increase the combat readiness and fighting effectiveness of military forces. Enhancements include discrete player identification for all participants, enhanced audio-visual cueing effects, increased boresight retention and accuracy, event recording and display, increased programmability of weapon characteristics, and increased ability to account for side, flank, corner and rear shots.

Fixed Tactical Internet (FTI) is a permanently installed network of Enhanced Position Location Reporting System (EPLRS) radio sets with an EPLRS Network Manager that

enables digital communications across the Army's Tactical Internet. The FTI acts as an alternative means to provide on-demand digital communications in support of testing, training, maintenance and experimentation at brigade and below. The FTI can significantly reduce deployment of signal company assets during training events. It is being fielded to installations fielded with the Stryker, M1A2, and M2A3 vehicles as well as Fort Benning, Fort Knox and Fort Gordon. FTI does not provide a capability to train with a Blue Force Tracker or other non-EPLRS-based communications systems.

One Tactical Engagement Simulation System (OneTESS) is a family of tactical engagement simulation systems that supports force-on-force and force-on-target training exercises at brigade and below, in all battlefield operating systems, at home station, maneuver CTCs and deployed sites. The system will support the training of proper engagement procedures; simulate weapon systems accuracy and effects; and stimulate detectors, sensors, monitors and countermeasures. OneTESS will use a common architecture compliant with the Common Training Instrumentation Architecture (CTIA). Embedded training in the Future Force end state will incorporate OneTESS. Along with CTIA, OneTESS provides the foundation for the LT2-FTS product line. OneTESS will replace MILES TADSS. OneTESS supports T2 and the FCS.

Home Station Instrumentation Training System (HITS) is being reevaluated for a potential accelerated fielding. It provides objective data collection of unit performance in force-on-force, force-on-target, live-fire and associated command post exercises. HITS supports CATS training and exercise events. HITS will be the data transfer bridge between live training and the other training

environments through CTIA and the LVC IA. An initial-HITS (I-HITS) capability, providing threshold HITS capability, is undergoing side-by-side comparisons. HITS is part of the LT2-FTS. HITS supports modular force conversion and the global war on terrorism.

Basic Electronics Maintenance Trainer (BEMT) provides basic electronics training of missile electronics repair and test, measurement and diagnostic equipment repair at Ordnance Missile and Munitions Center and School, Redstone Arsenal, and electronics maintenance repairer training at the Ordnance Electronic Maintenance Training Department at Fort Gordon.

Battle Command Training Support Program

The Battle Command Training Support Program provides the constructive training simulations and virtual simulator capabilities required by FM 7-0 and FM 7-1 and the Combined Arms Training Strategies.

Constructive Simulation Training is the use of computer models and simulations to exercise the command and staff functions of units, from platoon through Joint Task Force. It is the primary means for training BCT and above organizations in the art of warfighting. Constructive simulations permit multiple echelons of command and staff to execute their normal warfighting tasks in an extensive exercise without the resource constraints of large bodies of troops. It provides a versatile, cost-effective, low-overhead training environment that trains leaders how to visualize the battlespace and to make tactical decisions in a time-constrained, digitized environment. It also provides the "wraparound" for LVC integrated events and extending the battlespace to provide more realistic scenarios. Through the repetitive execution of tactical scenarios

followed by AARs, commanders and staff officers gain a realistic understanding of how to take advantage of the enhanced situational awareness afforded by the ABCS.

Army Constructive Training Federation (ACTF) consists of a variety of current and projected simulations and supporting applications and hardware designed to address the training needs of the Joint force land component commander (JFLCC) and Army Title X requirements across the range of military operations. The ACTF is a federation of simulations/models and the associated software tools required to compose, initialize, operate, tune and maintain a synthetic operational environment to support the conduct of collective command and staff training. ACTF enhances the effectiveness of commander and staff training, exercises, and staff mission rehearsals by dramatically increasing the realism and the scope of the available training environment in accordance with *Field Manual 3.0, Operations*, to meet the requirements of appropriate Universal Joint Task List, Army Universal Task List, Joint Operations Concept, and Force Operating Concepts. The constructive models in the ACTF include CBS; Tactical Simulation (TACSIM); Combat Service Support Training Simulation System (CSSTSS); Joint Conflict and Tactical Simulation (JCATS); Digital Battlestaff Sustainment Trainer (DBST); Warfighters Simulation (WARSIM); WARSIM Intelligence Model (WIM), an AAR tool (currently Vision XXI); the Joint Deployment Logistics Model (JDLM) and One Semi-Automated Force (OneSAF). ACTF supports modular force conversion and T2.

Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT) is a training device being fielded to the Army to support MI units at corps and below. The IEWTPT enables realistic battle command training

through the realistic simulation, stimulation, and presentation of joint and Army intelligence capabilities. It is designed to stimulate the MI collection system with scenarios that replicate battlefield situations utilizing the overarching constructive simulation as the driver. This puts the MI soldier in the training loop using the operational equipment and providing the required reports and data to the combat commander and his staff. IEWTPT supports modular force conversion and T2.

Joint Deployment Logistics Model (JDLM) is an exercise driver used to stimulate exercise play for the collective training of AC and RC commanders and their staff in command, control and coordination of combat service support (CSS). The training audience includes the CSS commanders and staffs in echelons above corps, corps support commands, and division support commands, as well as their subordinate headquarters down to battalion level. The simulation is both stochastic and deterministic and will accommodate any theater, depending on the database. JDLM is the only existing Army-approved training simulation capable of providing the detailed logistics information needed to train CSS staffs.

Common Battle Command Sim Equipment (CBCSE) is common off-the-shelf hardware that is used to run the ACTF software. It provides a significant improvement for running the simulations over legacy hardware. CBCSE requires replacement every 3-5 years to maintain relevancy.

One Semi-Automated Forces (OneSAF) is a tailorable and composable next generation Computer Generated Force (CGF) that represents a full range of operations, systems and control process (TTP) from entity to brigade levels with variable levels of fidelity, and supports all model and simulation domain applications with an emphasis on human-

in-the-loop and closed-loop modes. It will represent the physical environment, including urban operations and its effect on simulated activities and behaviors. OneSAF will be the future entity-level brigade and below constructive simulation and a component of the Army Constructive Training Federation (ACTF), and will be used in battle labs and research development and engineering centers (RDECs). OneSAF will be interoperable with ABCS and Force XXI Battle Command, Brigade and Below (FBCB2). It will be the embedded training capability of FCS and the objective semi-automated forces (SAF) component of CCTT/AVCATT/SE Core simulation systems, and will interoperate with OneTESS and the Army Combat Training Instrumentation Systems. OneSAF enables integrated LVC simulations into realistic synthetic battlespaces. OneSAF will represent C4I, combat, combat support (CS) and CSS, and will significantly reduce exercise overhead. OneSAF will replace JANUS (A/T), Battalion Battle Simulation (BBS), OneSAF Test Bed, JCATS (MOUT), and CCTT/AVCATT SAF after fielding. OneSAF supports T2 and the FCS.

Battle Command Training Centers (BCTC) (aka Mission Support Training Facility (MSTF)). The BCTC provides a turnkey digital training capability to conduct individual and collective training throughout the AC and RC, enabling the commanders to train individual operators, leaders and battle staffs across the full spectrum of operations, to include mission rehearsal and reach capabilities using their like go-to-war systems. Architecture provides a near-seamless LVC training environment. BCTCs directly support the execution of day-to-day operations and exercise support for all leader and battle staff training required by the CATS, Army and MACOM 350-1 training directives, and Army Training Strategy to achieve combat readiness in Service, joint

and/or combined arms training environments. BCTC supports modular force conversion, the global war on terrorism and the FCS.

Virtual Simulation Training is executed on computer-generated battlefields and provides crews, leaders and units with realistic, immersive training experiences using an embedded training capability or man-in-the-loop simulators that approximate the physical layout of tactical weapon systems and platforms. In the virtual environment, simulators operating on virtual terrain take the place of weapon systems and can be linked to expand the scope of the training event. Virtual training systems provide commanders with “walk-level” training, sustainment training, gated training events, leader development and mission rehearsal capabilities. Through frequent and repetitive use and an immediate and total replay AAR capability, virtual training systems assist commanders with the building and sustaining of training readiness. Virtual training also has the advantage of allowing Soldiers to perform tasks too dangerous for the live environment (such as calling for artillery fires on or near an occupied friendly position), provides the capability for rapid changes to scenarios, and facilitates retraining specific tasks until training objectives are met. Virtual simulations allow repetitive training under varying conditions to enable the individual or team to conduct live training at a higher state of readiness, potentially reducing OPTEMPO costs. Many virtual simulations also provide a link to the ABCS, thereby providing a realistic training environment for the digitized units and battle staffs.

Close Combat Tactical Trainer (CCTT) is the Current Force’s ground maneuver component of CATT, and is a system of computer-driven, combat vehicle simulators such as the M1 Abrams Tank, the M2 Bradley Fighting Vehicle (BFV), the M3 Cavalry Fighting Vehicle, the

Fire Support Team Vehicle, the HMMWV, and emulators that control other vehicle models and that work interactively, similar to the vehicles and functions they simulate. These simulators and emulators are connected via a local area network (LAN). The system's computers create a simulated battlefield that, when viewed by Soldiers who are using the system, creates the illusion of moving and fighting over actual terrain while operating or riding inside the actual vehicles, and employing the actual weapon systems mounted in or on the vehicles. CCTT is a type-classified system similar to Simulation Network Training (SIMNET-T), but with higher fidelity and more types of manned simulators, more capable emulators, a highly developed SAF, and much improved visual and terrain fidelity. CCTT is fielded in company/team sets for the AC and mobile platoon sets for the Army National Guard. Army National Guard units also have access to CCTT sites at AC Army posts for use during inactive duty training and annual training. This system supports modular force conversion.

Synthetic Environment Core (SE Core) is the Army's virtual component of the LVC-IA. It is a program that will integrate the various functions and components of virtual simulations and link the virtual environment to the LVC training environment (TE) to support DOD's T2 and the Army's FM 7-0 training strategy. SE Core will develop new, and integrate existing, hardware and software products creating the Army's common virtual environment (CVE), linking system and nonsystem virtual simulations into a fully integrated training capability. The CVE enables the Army to execute combined arms and joint training, mission planning and rehearsals at home station, en route and at deployed locations. SE Core is a key element in the Army's Training Transformation plan to link the FCS-embedded virtual training capability

with Current Force and JIM virtual simulators and simulations. SE Core is an FCS-complementary system. This program supports T2 and the FCS.

Aviation Combined Arms Tactical Trainer—Aviation Reconfigurable Manned Simulator (AVCATT-A) is the aviation component of the Combined Arms Tactical Trainer (CATT) that provides a system for staff/crew collective and combined arms training, mission rehearsal and joint exercises. AVCATT-A will be fair-fight interoperable with Close Combat Tactical Trainer (CCTT), is capable of linking with other AVCATT-A systems via LAN or wide area network (WAN), can be networked to the Army Tactical Command and Control System (ATCCS) workstations and will be interoperable with future CATT systems. It is a multifunctional training system, tailorable to specific unit needs such as mission planning and rehearsal and combined arms collective training through use of Distributed Interactive Simulation (DIS) protocols and Tactical Simulation Interface Units (TSIUs). AVCATT-A incorporates Current and Future Force Army aviation aircraft, including attack helicopters AH-64A Apache and AH-64D Apache Longbow, armed observation helicopters OH-58D Kiowa Warrior, utility helicopters UH-60A/L/M Black Hawk, cargo helicopters CH-47D/F Chinook, and future Armed Reconnaissance Helicopters. Each AVCATT-A system consists of two trailers with six reconfigurable manned modules, Battle Master Control (BMC) room with role-player workstations capable of replicating battle command, ground maneuver, fire support, close air support, logistics and engineer functional areas, and an AAR facility. The virtual environment is viewed through a helmet-mounted visual display (HMVD) and has a backup viewing system. The program was approved for full-rate production in December 2003. The AVCATT-A is currently fielded to Fort Rucker, Fort Campbell, Army

National Guard Region V (Eastover, SC), USAREUR, Fort Stewart and Korea. By the end of FY05, two additional systems will be fielded to Fort Hood and Army National Guard Region I (Marana, AZ). The AVCATT-A is a mobile system that can support unit collective training at multiple sites including home station, CTCs, and National Guard training sites. This system supports modular force conversion.

Soldier Combined Arms Tactical Trainer (S-CATT) is another member of the CATT family and will be designed to support small-unit leader training on critical combat skills prior to executing them in a live training environment. Soldier CATT's centerpiece is the Virtual Warrior, a high-fidelity dismounted leader trainer providing a natural virtual environment in which dismounted leaders see the battlefield in three dimensions, control subordinate virtual Soldiers through voice recognition/voice synthesis, and communicate via FM voice communications and a Land Warrior-like interface. The reconfigurable vehicle simulators will be rapidly reconfigurable, partial-immersion trainers supporting all Stryker variants, HMMWVs and BFs where mounted leaders see the battlefield in three dimensions from their crew station point of view and communicate via voice and digital FBCB2 systems.

Engagement Skills Trainer (EST) 2000 is a unit/institutional, indoor, multipurpose, multi-lane, small arms, crew-served and individual antitank training simulator that trains individual marksmanship, unit collective gunnery and tactical training for static dismounted infantry, scout, engineer, military police squads, and CS/CSS elements. EST 2000 provides the capability to build and sustain marksmanship, squad and team fire distribution and control, and judgmental use of force training using computer-generated

imagery. Weapons supported are M16A2 rifle, M4 carbine, M9 pistol, M249 machine gun, M60 machine gun, M240B machine gun, M2 .50-caliber machine gun, MK19 grenade machine gun, M203 grenade launcher, M136 antitank weapon and M1200 shotgun. EST 2000 is currently funded and in production and has been fielded with great success. An increase to this requirement is expected as users recognize the value of this training device. EST supports modular force conversion and the global war on terrorism.

Call for Fire Trainer (CFFT) is a collective training system that provides a simulated battlefield for training forward observers at the institutional and unit levels. The system will be developed to high-level architecture standards and will operate in a stand-alone or integrated mode to train from one to nth students in an institutional or home station training environment. The system is transportable and provides for advanced distributed learning, simulated military equipment, virtual environments, and computer-generated forces. Modular system architecture allows for interrogations with other simulation systems, tactical equipment and future combat training systems. This system supports the global war on terrorism.

Combat Training Centers Modernization Program

Digital After Action Review Tool (DAART) enables the CTC instrumentation system to monitor digitized unit communications and collect digital data to prepare the AAR for digital units. This program is critical in providing a bridge between the current and objective instrumentation systems (OIS). It enables the CTC current instrumentation systems to collect digital data for the preparation of AARs for Army Battle Command System (ABCS)-equipped units.

CTC Battle Command (BC) Security. CTCs are required to be able to connect to ABCS for the purpose of: (1) playing the higher headquarters (HICON) and adjacent units; (2) extracting critical information from the ABCS for the purpose of AAR and take-home package (THP) development; (3) maintaining safety during the exercise; (4) and controlling the exercise. Instrumentation and AAR product systems (such as DAART) are currently required to operate in Secret System High (SSH). CTC BC security provides a capability allowing CTC instrumentation and support systems (such as DAART, OIS) to be connected to the rotational unit's ABCS. CTC instrumentation and other supporting systems were developed as training devices and, as such, were not considered automated information systems (AIS). The increasing use of automated systems to support command and control functions and changes in the regulations concerning information assurance have resulted in new requirements for certification and accreditation of CTC instrumentation and supporting systems. The security environment at each CTC must be significantly upgraded to continue to support realistic training by rotation units. CTC BC Security supports modular force conversion.

Objective Instrumentation System (OIS) is based on and compliant with the CTIA and LT2 concepts.

The OIS is a program to facilitate force-on-force training at the maneuver CTCs (NTC, JRTC and CMTC) to train U.S Army AC units and National Guard units, and provides joint training capability with the other Services. The OIS is an upgrade from the current instrumentation system (IS) and will be developed according to the CTIA. The CTIA serves as the common core architecture for the OIS programs, as well as the instrumentation system programs for home stations and the JRTC MOUT facility.

The OIS consists of four subsystems: (1) Core Instrumentation Subsystem, (2) Range Data Measurement Subsystem, (3) Range Monitoring and Control Subsystem and (4) AAR Subsystem. The OIS is an integrated system of computer software and hardware, workstations, databases, voice and video recording, production and presentation equipment, interface devices, and communication systems. The system is configured to collect, report, store, manage, process and display event data for 2,000 instrumented players with the capability to expand to 10,000 instrumented players.

The OIS will accomplish the following functions: exercise planning, system preparation, exercise management, training performance feedback, and system support. The OIS will primarily:

- Collect digital performance data (voice, video and messages) from instrumented battalion-sized task forces of armor, artillery, aviation and dismounted Soldiers conducting force-on-force, combined arms, or maneuver operations against a live OPFOR.
- Relay the performance data from the training battlefield to the instrumentation system for processing, manipulation and display at the Training Analysis and Feedback (TAF) facility.
- Prepare AARs and aid in the presentation of the AARs to the training units both in the field, using mobile facilities, and at the TAF facility AAR theater. The system will also enable frequent informal "jeep" AARs. The system is designed to optimize the data collection and presentation process. Collective training output information is in the form of digital graphics, video presentations, statistical and narrative summaries, and hardcopy paper products.

The system also utilizes the Simulated Area Weapons Effects (SAWE) on the personnel and equipment participating in instrumented training exercises through the use of the SAWE/MILES II system. Data collection, reporting, management, computation, generation, display and weapons effects simulation are performed by analog and digital means through the integrated functioning of the subsystems of the OIS. This system enhances the ability of maneuver CTCs to conduct force-on-force, live-fire combined arms training by allowing the collection of engagement data for analysis and AAR production. Priority of fielding is NTC and JRTC.

Deployable OIS is designed to support instrumented AARs for units not physically located at a maneuver CTC site. The intent is to expand CMTC's Victory Strike capability and demonstrate as a proof of principle (PoP). Following the PoP, the Army will determine if the deployable OIS capability needs to be fielded to additional sites.

MOUT Instrumentation System (MOUT IS). Phase 1 of the MOUT-IS provides a basic capability for monitoring and recording audio and video data, within the MOUT complex in a limited number of buildings, to support AARs for live-fire and force-on-force training exercises. Phase 1 consists of the integration of commercial off-the-shelf (COTS)/nondevelopmental items (NDI) hardware and software components. Signal Communications Systems and Supply, Inc. (SIGCOM) in Greensboro, NC, was approved by the Small Business Administration (SBA) for contract award of Phase 1 of the JRTC MOUT-IS. SIGCOM is classified as a small, disadvantaged (8a) contractor. For Phase II, there will be four contractual efforts for the acquisition of the JRTC MOUT-IS: audio and visual instrumentation, advanced targetry

system, indoor position location, and JRTC-IS integration/connectivity. MOUT IS supports modular force conversion and the global war on terrorism.

Deployable MOUT/Modular Armored Tactical Combat House (MATCH). A deployable, instrumented urban operations training system. The system utilizes audio and video recording to capture Soldier actions for AAR input. Instrumentation includes internal and external cameras and controlled targetry and battlefield effects. Facility also includes external lighting, internal and external stairwells, breach points, and moveable wall panels to enhance training. MATCH is designed to be used with ball ammunition and will support up to and including 7.62 mm.

NTC Live-Fire Targets provide for the development and acquisition of replacement target systems on the live-fire ranges. The program will replace existing target systems with state-of-the-art capabilities, integrate and be compliant with NTC OIS live-fire C2, and improve the C2 target array. This program supports modular force conversion and the global war on terrorism.

Opposing Forces Surrogate Training Systems (OSTS) consists of the OPFOR Surrogate Vehicle (OSV), OPFOR Surrogate Tank Vehicle (OSTV) and OPFOR Surrogate Combat Wheeled Vehicle (OSWV). These are based on the M113A3 chassis with visual modifications to include an OSV turret that is driven by BFV components. Excess M60 thermal sights are utilized. The OSTV replaces the M551 Sheridan and M60 tanks used as surrogate tanks, and the OSV replaces M551s and M113s used as surrogate BMPs. These systems will be fielded to NTC, JRTC and CMTC.

OPFOR Combat Wheeled Vehicle. A change in the operational environment reduces

the number of combat tracked vehicles but increases wheeled systems. It provides an array of CS/CSS civilian wheeled vehicles encountered on the modern battlefield using a common M1113 HMMWV chassis. These systems reflect changing real-world conditions and provide full-spectrum capability to the maneuver CTC OPFORs. This includes both tactical and technical vehicles. OSTV/OSV support modular force conversion and the global war on terrorism.

CTC Aviation consists of the OPFOR Aviation and OC/T Aviation. OPFOR Aviation provides OPFOR rotary-wing aviation and unmanned aerial vehicles (UAVs) that replicate emerging threats. UH-1s are aging, near wear-out, and scheduled to leave the inventory in FY08. OC/T Aviation provides the OC/Ts the capability to control the event/exercise and provides an AAR for aviation assets at a maneuver CTC or Joint Air-Ground Center of Excellence (JAGCE) rotation. Both the OPFOR and OC/T aircraft will be fielded as part of the Light Utility Helicopter (LUH) plan and is scheduled for FY08 time frame. There is no UAV program for OPFOR. These systems will replicate real-world conditions and provide full-spectrum capability to the maneuver CTC OPFORs.

OH 58D TESS is needed to support aviation systems during normal rotations (NTC, JRTC and CMTC) as well as at the JAGCE. OH-58D TESS would allow realistic play and provide valuable AAR feedback.

Conclusion

People are central to the Army—they are the keys to achieving ready forces today and a transformed Army tomorrow. Effective Soldiers and leaders—those who are self-aware, adaptive, and innovative—will solve unforeseen operational problems. Developing and maintaining this edge in the human dimension is critical to the success of Army transformation and sustaining day-to-day operational readiness. The Army is committed to the development of its leaders at all levels. This commitment extends equally to all officers, warrant officers, NCOs and Department of the Army civilians of the Active Army, Army National Guard and U.S. Army Reserves. Leaders must be appropriately developed before assuming and while occupying leadership positions to ensure they are competent in, and confident of, their ability to lead at the level assigned. In short, the goal is to develop competent, confident leaders who can exploit the full potential of present and future doctrine.

Army training must change to remain relevant as changes occur in the operational environment. The Army must train Soldiers and units for situations and missions they will face today and in the future. The Army must provide leaders, Soldiers, and units tough, realistic, multi-echeloned and fully integrated training that will produce bold and innovative leaders to deal with complex situations, flexible Soldiers with the Warrior Ethos, and well-trained units. Soldiers of the 21st century will be expected to achieve these results across the full spectrum of operations. The nature of future threats demands that the Army place its highest priority on training the nation's Soldiers.

ANNEX D: MATERIEL

Introduction

This annex provides a brief description and status of key Army materiel programs contained in the FY06 Presidential Budget (PB06). These programs develop and field new equipment systems, provide incremental improvements to existing systems, or recapitalize existing fielded systems by rebuilding to a zero-miles/-hours condition and upgrading system capabilities.

These materiel programs are part of a comprehensive and integrated doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) modernization solution to execute the Army's core competencies: (1) train and equip Soldiers and grow leaders; and (2) provide relevant and ready land power capability to the combatant commander as part of the joint team.

Equipping Objectives

Army equipping efforts are focused to support the following objectives:

- The Army's highest priority is to field systems and provide needed capabilities to both Active and Reserve Component (AC/RC) units deployed (or in the process of deploying) in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). As a part of this effort, the Army has created a "pool" of equipment in theater referred to as "stay-behind equipment" (SBE) that units will draw upon on their arrival. The use of SBE allows

the Army to provide units with required capabilities (such as armored HMMWVs and cargo trucks) while minimizing shipping time and transportation costs. Based on requests by the combatant commanders, units may also be provided additional equipment with improved capabilities while they are deployed.

- Execution of Army transformation as directed in the Army Campaign Plan
- Develop capabilities consistent with joint interdependence and conducting operations in a joint, interagency and multinational (JIM) environment. Accelerate the development and fielding of Future Force capabilities for insertion where feasible into the Current Force.
- Conversion of the Current Force units to a modular design. Previous conversions (FY04) included the brigades and division headquarters of the 3rd Infantry Division, 10th Mountain Division, and 101st Air Assault Division. FY04 conversion activities included the activation of an additional modular brigade for the 3rd Infantry Division, 10th Mountain Division, and 101st Air Assault Division. FY05 modular conversion includes the 4th Infantry Division (convert existing units and activate an additional Brigade Combat Team or BCT), I Corps (converts to a Unit of Employment or UEx design), and the activation of two additional BCTs (one each for the 10th Mountain Division and 25th Infantry Division).

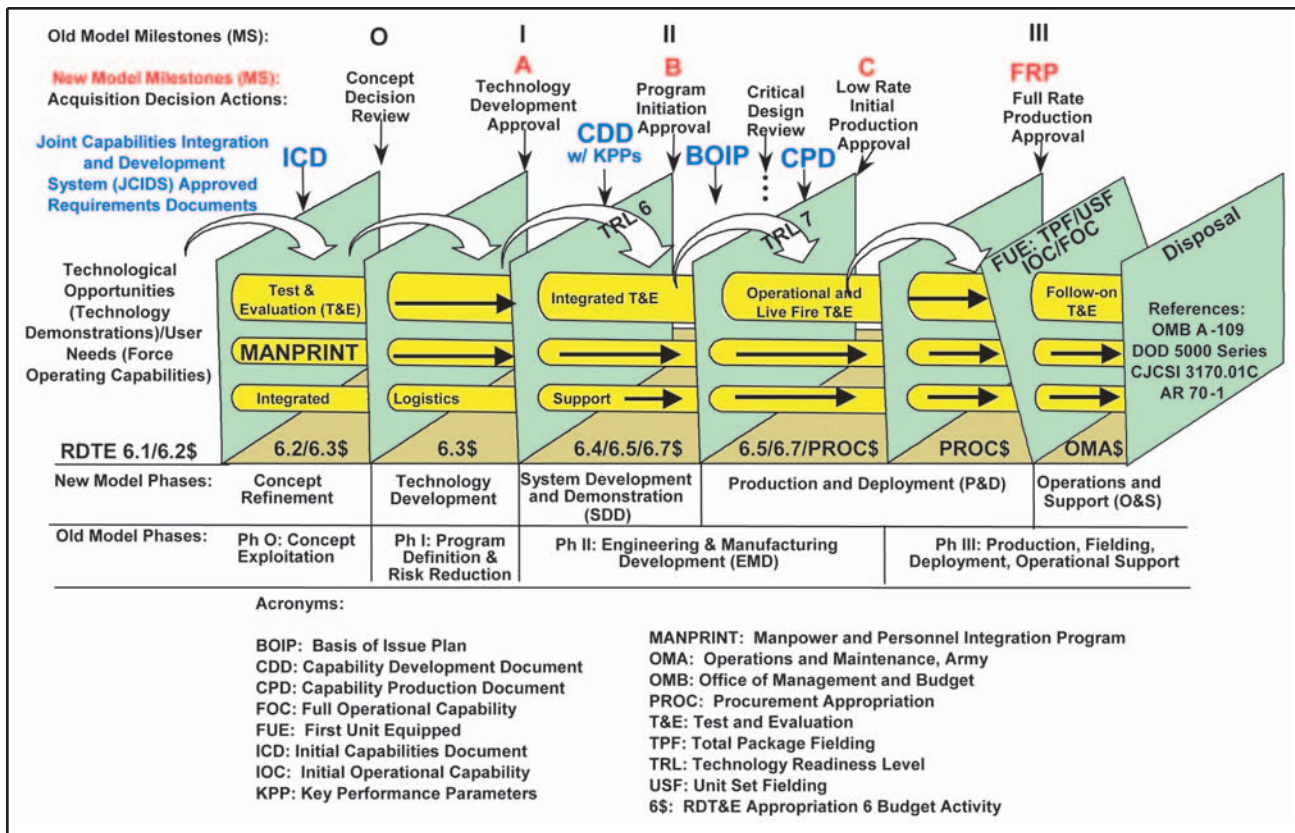


Figure D-1. System Acquisition Management Process

- Field Stryker, Future Combat Systems (FCS), and other systems by Unit Set Fielding (USF) to meet established time lines for achieving an initial operational capability (IOC) for the unit and its interdependent system-of-systems (SoS) set.
- Rapid fielding and rapid equipping initiatives leverage current programs and commercial off-the-shelf (COTS) technology to give the Soldier increased survivability, mobility and lethality capabilities.

These objectives are supported by a host of initiatives and plans that include: setting the force/reset plans, Stryker Brigade Combat Team (SBCT) and UA USF plans, recapitalization plans, software blocking, Battle Command Way Ahead plan, Army National Guard Division Redesign Study (ADRS), Army Medical Department (AMEDD) transformation initiatives, Army Materiel Command (AMC) re-

structuring, logistics transformation initiatives, infrastructure plans, and unit focused stability and rotation plans. Most of these initiatives and plans are highlighted throughout the 2005 *Army Modernization Plan*.

The Acquisition Phases and Developmental Processes

The materiel programs described in this annex are in various phases of the acquisition management life cycle. Figure D-1 depicts the acquisition management process and management milestones for reference. Both the new and old terms are provided because programs initiated under the old life-style model still use those terms. Definitions for these phases and other acquisition terms can be found in the DOD 5000 Defense Acquisition Policy documents.

Evolutionary acquisition is the DOD-preferred strategy being used by the Army to rapidly acquire materiel systems with mature technologies for the user. This strategy delivers capabilities in increments, with the recognition that future improvements in capability will be needed. The objective is to balance needs and available capability with resources, and to put capability into the hands of the user quickly. Success of this strategy is dependent upon consistent and continuous definition of requirements, maturation of technologies, and continuous collaboration between the user, tester, and developer to develop and produce systems with increasing capability towards a materiel concept. Figure D-2 depicts this requirements and acquisition process.

Evolutionary acquisition uses two key processes, incremental and spiral development, to provide for continuous discovery and development of technology for military applications that enhance Joint Force capabilities.

Through the incremental development process, a desired capability is identified and the required end state is defined. That requirement is met over time by the development of several increments, each dependent on available mature technology. The requirement for future increments is based upon the ability to fill the gap between the current capability and the objective capability (100 percent design concept) for a system.

Through the spiral development process, a desired capability is identified, but the end-state requirements are unknown at program initiation. Those requirements are refined through experimentation, risk management, and continuous user feedback to provide the best possible capability within an increment. The requirement for future spiral development is dependent upon user feedback and technology maturation.

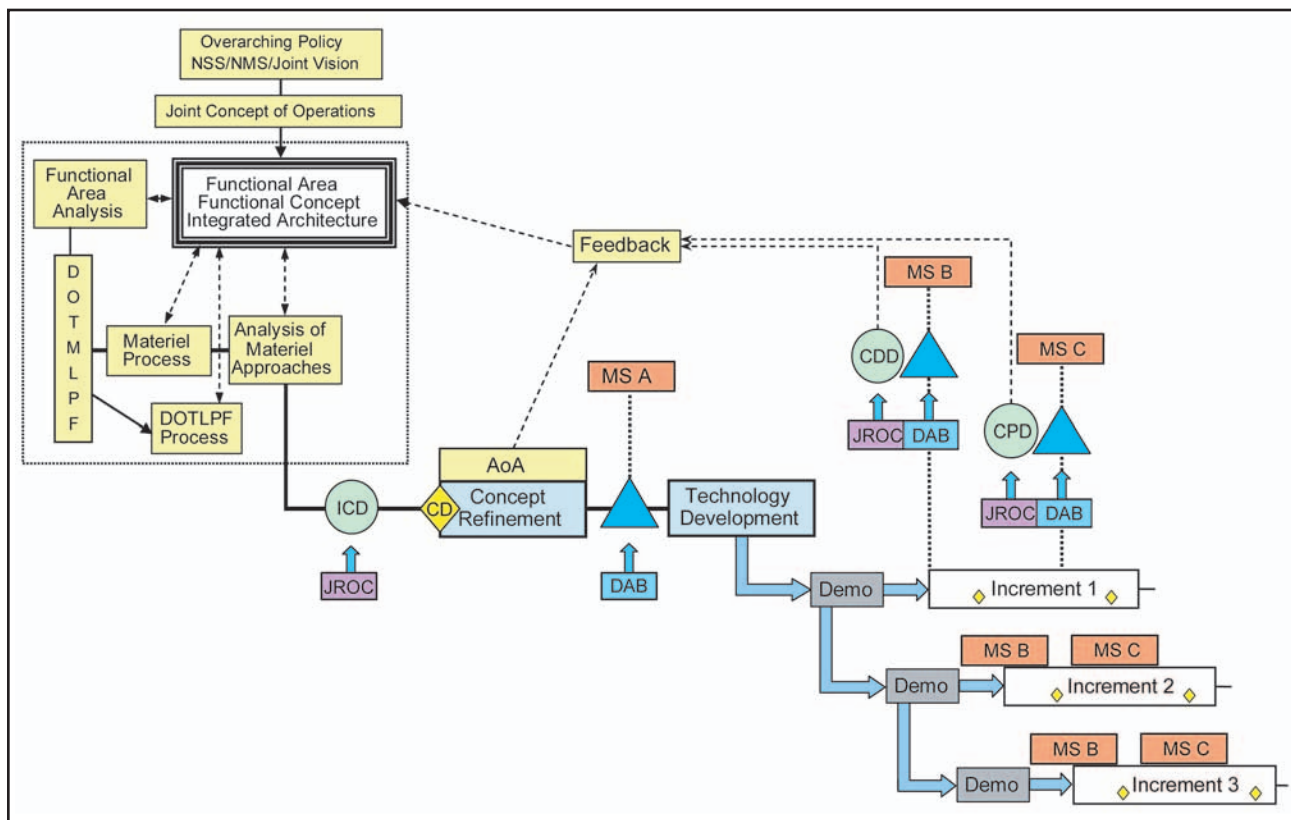


Figure D-2. Requirements and Acquisition Process

Both spiral and incremental development require close coordination between materiel and training developers to ensure training products and plans are developed to support the new capabilities provided by each increment and any spiral developments applied outside an increment cycle to existing systems.

Developing Capabilities for the Future Joint Force

The Army is modernizing its Current Force to remain a relevant and ready component of the Joint Force that meets near-term operational challenges while continuously pursuing truly transformational changes to develop a Future Force over time. The Joint Capabilities Integration and Development System (JCIDS) is the new top-down joint capabilities-based requirements generation process that will guide Army and the other Services' investment in transformational capabilities for the future Joint Force. The Joint Operations Concepts (JOpsC) is the first step in this process that translates strategic guidance to desired joint

capabilities. It is an overarching concept and construct that provides the operational context for transformation by linking strategic guidance with the integrated application of Joint Force capabilities. The JOpsC describes how the Joint Force intends to operate 15-20 years in the future across the entire range of operations.

The JOpsC is a unifying framework for developing supporting Service concepts, subordinate joint operational, functional, and enabling concepts, and a set of integrated operational, technical, and system architectures that look at existing, evolving, and future Joint Force requirements. These concepts and architectures will be validated through joint analysis, experimentation and lessons learned to guide future joint- and Service-led modernization efforts.

Joint Functional Concepts

There are five appendices to this annex. Each appendix is aligned with one of the

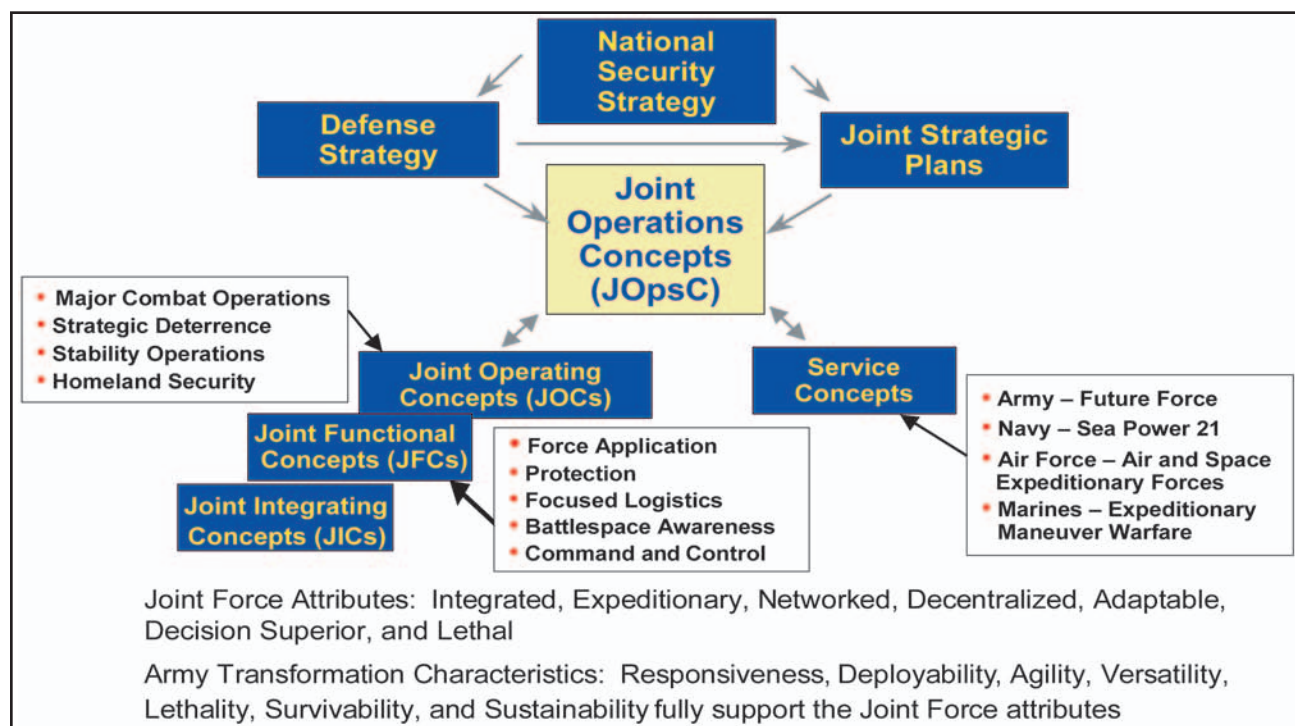


Figure D-3. Joint Operations Concept Framework

five functional concepts of force application, protection, focused logistics (FL), battlespace awareness (BA), command and control (C2) and net-centric. Each functional concept describes the approach for providing a particular military capability across the range of military operations. Under JCIDS, the J8 is using these functional capability categories to focus joint analysis. Programs that provide more than one functional capability are assigned a lead Joint Warfighting Capability Assessment (JWCA) team with one or more supporting JWCAs to do the analysis up front of proposed concepts and DOTMLPF solutions. A designated Functional Capability Board (FCB), which is also aligned with one of these five emerging Joint Functional Concepts, validates this analysis and forwards recommendations to the Joint Requirements Panel and Joint Requirements Oversight Committee that provides top-down guidance and direction to the Services on their modernization programs.

In this annex, Army materiel programs with more than one functional capability are described only once within a functional capability appendix that best follows the current portfolio of the five FCBs described below and as aligned in the equipping resourcing framework used to organize the Army equipping program.

Force application capabilities are those that cause an effect on the enemy. The force application FCB portfolio includes land, maritime, information, space, psychological, deception, and special operations; joint targeting and fires; conventional, nuclear, and electronic attack; and suppression against enemy air defense. Appendix 1, Force Application, provides a description and status on the following PB06-funded materiel programs:

Aviation Modernization

AH-64 Apache
Armed Reconnaissance Helicopter (ARH)
Light Utility Helicopter (LUH)
UH-60 Black Hawk
CH-47 Chinook
Fixed Wing
Hellfire Family of Missiles
Advanced Precision Kill Weapon System (APKWS)
Aircraft Survivability Equipment (ASE)
Aviation Electronics (Avionics)
Aircrew Integrated Systems (ACIS)
Air Traffic Services/Air Traffic Control (ATS/ATC)
Aviation Ground Support Equipment (AGSE)
Aircraft Component Improvement Program (ACIP)
Training Aids, Devices, Simulators and Simulations (TADSS)

Soldier Modernization

Soldier as a System (SaaS)
Ground Soldier System (GSS)
Mounted Warrior (MW)
Air Warrior (AW)
Enhanced Night Vision Goggles (ENVG)
Thermal Weapon Sights ((TWS)
Objective Individual Combat Weapon (OICW) Increment 1
XM307 Objective Crew Served Weapon (OCSW)
Lightweight Laser Designator Range Finder (LLDR)
Nonlethal Capabilities Set (NLCS)

Ground Force Modernization

Abrams Tank
Bradley Fighting Vehicle
Stryker Family of Armored Vehicles
Lightweight 155 Howitzer (M777)

Future Combat Systems (FCS)
 Non-Line-of-Sight Cannon (NLOS-C)
 Non-Line-of-Sight Launcher System (NLOS-LS)
 High Mobility Artillery Rocket System (HIMARS)
 Army Tactical Missile System (ATACMS) Family of Munitions
 Chemical Energy Missiles—Javelin and TOW 2B
 Guided MLRS (GMLRS) Rocket
 120 mm XM395 Precision Guided Mortar Munition (PGMM)
 Excalibur
 Course Correcting Fuze (CCF)
 Mid-Range Munition (MRM)

Protection capabilities prevent an enemy's effect on us. The protection FCB portfolio includes personnel and infrastructure protection, nonproliferation and counterproliferation, and consequence management. Appendix 2, Protection, provides a description and status on the following PB06-funded materiel programs:

Air and Missile Defense (AMD) Modernization

PAC-3/MEADS Combined Aggregate Program (CAP)
 Terminal High Altitude Area Defense (THAAD)
 Surface-Launched Advanced Medium-Range Air-to-Air Missile (SLAMRAAM)
 Ground-Based Midcourse Defense (GMD) Segment
 Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)
 Sentinel
 Air Defense and Airspace Management (ADAM) Cell
 Joint Tactical Ground Station (JTAGS) Multi-Mission Mobile Processor (M3P)
 Air and Missile Defense Command and Control System (AMDCCS)

Chemical, Biological, Radiological, Nuclear and High Yield Explosives (CBRNE) Defense Modernization

M31/M31A1/M31E2 Biological Integrated Detection System (BIDS)
 Stryker-NBCRV
 M56 Wheeled Smoke System (Coyote)
 Vehicle Obscuration Smoke Systems (M6 and M7)
 Chemical Biological Protection Shelter (CBPS)
 Collectively Protected Deployable Medical System (CP DEPMEDS)
 Sorbent Decontamination System, M100
 Joint Portal Shield Detector System (JPS)
 Joint Service Lightweight Chemical Agent Detector (JSLSCAD)
 Joint Service Lightweight NBC Recon System (JSLNBCRS)
 Joint Chemical Agent Detector (JCAD)
 Joint Warning and Reporting Network (JWARN)
 Joint Service Man-Portable Decontamination System (JSM-PDS)
 Joint Service Sensitive Equipment Decontamination (JSSED) System
 Joint Service Transportable Decontamination System (JSTDS)
 Joint Service Personnel/Skin Decontamination System (JSPDS)
 Joint Service Sensitive Equipment Decontamination Joint Platform Interior Decontamination System (JSSED-JPID)
 Joint Service General Purpose Mask (JS-GPM)
 Joint Biological Agent Identification and Diagnostic System (JBAIDS)
 National Guard Weapons of Mass Destruction Civil Support Team (WMD-CST) Unified Command Suite (UCS)
 National Guard Weapons of Mass Destruction Civil Support Team (WMD-CST) Analytical Laboratory Suite (ALS)

CBRNE Installation Protection Program (IPP)

Focused logistics (FL) capabilities sustain and support the force. The FL FCB portfolio includes deployment distribution, sustainment, medical, mobility, and logistics command and control. Appendix 3, Focused Logistics, provides a description and status on the following PB06-funded materiel programs:

Counter-IED Modernization

Warlock

Lift Equipment Modernization

Joint High Speed Vessel (JHSV) (formerly the Theater Support Vessel (TSV))
Joint Precision Airdrop Systems (JPADS)

Assured Mobility Modernization

AN/PSS-14 Handheld Standoff Mine Detection System (HSTAMIDS)
Ground Standoff Minefield Detection System (GSTAMIDS)
Spider (Antipersonnel Land Mine Alternative (APL-A))
Improved Ribbon Bridge (IRB)
Rapidly Emplaced Bridge System (REBS)
Dry Support Bridge (DSB)

Sustainment Modernization

Transportation Coordinator's Automated Information for Movement System II (TC-AIMS II)
Movement Tracking System (MTS)
Battle Command Sustainment Support System (BCS3) [previously the Combat Service Support Control System (CSSCS)]
Global Combat Support System (GCSS) Army
Combat Service Support Automated Information System Interface (CAISI)

Combat Service Support (CSS) Satellite Communications (SATCOM)
Advanced Aviation Forward Area Refueling System (AAFARS)
Tactical Electric Power (TEP)
Standard Automotive Tool Set (SATS)
Family of Medium Tactical Vehicles (FMTV)
High Mobility Multipurpose Wheeled Vehicle (HMMWV)
Heavy Expanded Mobility Tactical Truck (HEMTT)
Palletized Load System (PLS)
Containerized Kitchen (CK)
Unit Water Pod System (Camel)
Load Handling System (LHS) Compatible Water Tank Rack System (Hippo)
Load Handling System Modular Fuel Farm (LMFF)
1,500-GPH Tactical Water Purification System (TWPS)
Rapidly Installed Fluid Transfer System (RIFTS)
Rough Terrain Container Handler (RTCH)
Container/Material Handling Equipment (C/MHE)
Maintenance Support Device (MSD)
Medical Communications for Combat Casualty Care (MC4) System
Man-Transportable Robotic System (MTRS)
Forward Repair System (FRS)
Tactical Water Purification Systems (TWPS)

Battlespace awareness (BA) capabilities collect, analyze and process battlespace information. The BA FCB portfolio includes all source intelligence collection, environmental data collection, predictive analysis, and knowledge management. Appendix 4, Battlespace Awareness, provides a description and status on the following PB06-funded materiel programs:

Distributed Common Ground System-Army (DCGS-A)
All Source Analysis System (ASAS)

Aerial Common Sensor (ACS)
 Advanced Field Artillery Tactical Data System (AFATDS)
 Long-Range Advanced Scout Surveillance System (LRAS3)
 Tactical Exploitation System (TES)
 Integrated Meteorological System (IMETS)
 Prophet
 Tactical Unmanned Aerial Vehicle (TUAV) Shadow 200
 Counterintelligence/Human Intelligence Information Management System (CHIMS)

Command and control (C2) capabilities plan, prepare, and direct execution of missions. The C2 FCB portfolio includes common operational picture (COP), joint C2, communications and computer environment, and own force information collection. Appendix 5, Command and Control, provides a description and status on the following PB06-funded materiel programs:

Army Battle Command System (ABCS)
 Global Command and Control System-Army (GCCS-A)
 Mounted Battle Command on the Move (MB-COTM)
 Maneuver Control System (MCS)
 Army Airborne Command and Control System (A2C2S)
 Air and Missile Defense Command and Control System (AMDCCS)
 Space Support Element Toolkit (SSET)
 Force XXI Battle Command Brigade and Below (FBCB2)
 Grenadier BRAT (GB) and Mini-Transmitter (MTX) Blue Force Tracking (BFT) System
 Satellite Communications (SATCOM)
 Combat Service Support (CSS) Satellite Communications (SATCOM)
 Global Positioning System (GPS)
 Single Channel Ground and Airborne Radio System (SINCGARS)

Warfighter Information Network-Tactical (WIN-T)
 Joint Tactical Radio System (JTRS)
 Bridge-to-the-Future Network (BFN)
 Joint Network Node (JNN), (formerly known as the Area Common User System Modernization Plan (ACUS MP))

Appendix 1: Force Application

Force application is the sum of all actions taken to cause desired effects on our adversary. Force application encompasses all aspects of fires and maneuvers that suppress, neutralize, seize or destroy an objective. These effects are conducted with precision—in time, sequence, location, duration and intensity—in order to apply immediate and continuous pressure on enemy capabilities. These actions occur in all domains—land, maritime, space and cyberspace—and include conventional and unconventional operations using conventional weapons, nonlethal weapons or nuclear weapons. These actions are enabled by offensive information operations (IO).

The Joint Force—adept at overcoming anti-access and area-denial strategies, attacking throughout the depth and breadth of the battlespace, and defeating fixed and mobile targets in all terrain and weather conditions across the full spectrum of conflict—requires a broad range of force application capabilities. The Army provides significant force application capabilities through sustained land dominance using conventional and unconventional air and ground maneuver forces that gain and maintain a positional advantage with decisive speed and overwhelming operational tempo. This dominant maneuver capability enhances the timeliness, range, precision, and impact of joint fires. Enabled by space, airborne and ground-based systems that provide robust command, control, communications, and

computer (C4) and intelligence, surveillance and reconnaissance (ISR) and an enhanced suite of kinetic and nonkinetic munitions, the Army provides lethal and precise fires for the joint force commander.

In conjunction with the Joint Force, the Army provides full-spectrum forces that are able to integrate maneuver, fires and IO across the full range of military operations. These include conducting operational maneuver from strategic distances; conducting mobile strike operations; closing with and destroying enemy forces; applying precision fires and maneuver; exercising information superiority; commanding and controlling joint and multinational forces; and providing direct, continuous, and comprehensive control over terrain, resources, and people.

The Army is equipping the Soldier to continue to provide force application capabilities required in the evolving security environment. This appendix provides a brief discussion of the Army's force application capabilities that provide the Joint Force dominant air and ground maneuver coupled with precision engagement and the key materiel programs associated with these capabilities. While materiel programs that support operational maneuver from strategic distances and assure mobility are force application capabilities supporting dominant maneuver, these programs are described in this annex under Appendix 3, Focused Logistics, given that deployment distribution and mobility are areas within the current FL FCB portfolio.

Aviation Capabilities

Aviation's strength is its ability to deploy quickly, maneuver rapidly, focus tremendous combat power, and achieve surprise and positional advantage. It is instrumental in achiev-

ing simultaneous, distributed and continuous combined arms air-ground operations.

With its manned and unmanned assets, aviation organizations develop situations from contact with the enemy, maneuver to positions of advantage, engage enemy forces beyond the range of their weapons, destroy them with precision fires, and provide close support. Its inherent mobility, flexibility, agility, lethality, and versatility are instrumental in enabling the air-ground task force commander to conduct decisive joint operations.

Aviation conducts maneuver, maneuver support, and maneuver sustainment operations across the spectrum of conflict. Highly skilled and knowledgeable aviation Soldiers employing aviation systems from entry operations to decisive action provide a significant contribution to the quality of firsts (see first, understand first, act first, and finish decisively). Aviation operations develop the COP, shield the maneuver force, shape the battlefield, extend the tactical and operational reach of the maneuver commander, and sustain the force. Aviation is critical to the Army's stability and support requirements, to include the homeland security requirements of our nation. Modernization and sustainment of Army aviation ensures these capabilities are maintained.

Aviation Modernization

Aviation modernization and recapitalization of existing aviation systems projected to remain in the fleet into the 2015-25 time frame are essential to supporting current as well as future operations. The urgent need to address the steadily deteriorating condition of the aviation fleet and accelerate RC modernization is being addressed through an Aviation transformation plan. This plan:

- Accelerates AC and RC aviation modernization efforts
- Aligns aviation structure and resources to comply with Future Force requirements
- Accelerates divestiture of nonmodernized aircraft (AH-1, UH-1, OH-58D and OH-58A/C)
- Restructures and standardizes attack and lift formations across the force
- Adjusts RC stationing and alignment to mitigate near-term risk of reduced AC lift assets
- Leverages new training technologies to maintain crew proficiency
- Invests in improvements for aircraft reliability/maintainability
- Procures new UH-60Ms to accelerate fielding of utility aircraft to the Army National Guard (ARNG)
- Procures Light Utility Helicopters (LUHs) to divest aging UH-1s and OH-58A/Cs primarily found in the ARNG
- Converts an additional 96 AH-64As found in the ARNG to AH-64Ds
- Procures Armed Reconnaissance Helicopters (ARHs) to divest the OH-58KWs
- Procures the Future Cargo Aircraft (FCA) to replace an aging fixed-wing fleet

The last several years have seen great progress in modernizing Army aviation. Fielding of the AH-64D Longbow Apache is well underway. Recapitalization programs for the CH-47 Chinook and UH-60 Black Hawk have begun. The ARH will replace the OH-58D. Fixed wing is modernizing its current turbo-prop fleet (C-12 and RC-12) with the Global

Air Traffic Management system (GATM) as well as other safety and cockpit management systems, which will keep these aircraft relevant while the Army procures the FCA to replace legacy C-23 Sherpas. The Army is successfully retiring aging and obsolete aircraft from the force, and lessons learned from previous and current military operations and deployments are being addressed. The Army is continuing to examine the best means to achieve the vertical envelopment capability required to rapidly project the FCS-equipped forces across difficult or distant geographic locations. Future Force requirements for a robust, fully modernized aviation force are continuing to be developed.

Unmanned Aerial Vehicle Systems (UAVS)

As the Army transforms to a more flexible, responsive and lethal Future Force, Army unmanned aerial vehicle systems (UAVS) will also transform to provide integrated, responsive and lethal capabilities to commanders at all echelons from the Current to Future Force. Future commanders will require a UAVS with a command and control capability that facilitates the flexible and rapid application of overmatching, decisive land power at specific times and locations throughout a greatly expanded battlespace. On battlefields of the future, UAVS will support all Army echelons, across the spectrum of conflict, on varied terrain and across the Battlefield Operating Systems. Redefining the Army's UAVS requirements reflects an evolutionary process to ensure the support required for tomorrow's Army while providing the best support possible to our forces engaged in the global war on terrorism.

In OEF and OIF, UAVS such as the Raven, Shadow 200, Hunter and Improved GNAT (I-GNAT) are providing a new dimension to ma-

neuver forces. The Raven is being provided in theater to OEF and OIF units to enhance small unit reconnaissance, surveillance and target acquisition (RSTA). Equipping and training for deployed Raven units is conducted in theater and in CONUS. The Shadow 200, the Army's first tactical UAV (TUAV) to go into full-rate production (FRP), is also in use as it continues to be fielded to the military intelligence (MI) company within the Army's maneuver brigades, including the new Stryker brigades. Planned system improvements include airframe upgrades, refined target location error, and addition of a laser designation into the payload gimble.

The Hunter UAVS is fielded within III Corps aviation exploitation battalions, with one UAVS company per corps consisting of six air vehicles and associated payload and ground control stations. The Hunter is a RSTA and battle damage assessment (BDA) asset

providing ground forces with near real-time imagery via electro-optical/infrared (EO/IR) intelligence at ranges up to 200 km. The Hunter UAVS, while being used extensively as an ISR platform, has recently been upgraded to employ the Viper Strike munition in OIF. The Hunter UAVS capability will be sustained until an extended-range, multipurpose UAVS is fielded at the UE level as a RSTA and command, control, communications and intelligence (C3I) system.

Current UAVS modernization efforts focus on accelerating Shadow fielding and providing a small UAVS like the Raven to meet today's operational needs, accelerating Future Force UAVS development and fielding into the Current Force, continuing development of the ER/MP UAVS to replace the Hunter, and science and technology (S&T) efforts that leverage technologies for improved UAVS capabilities.

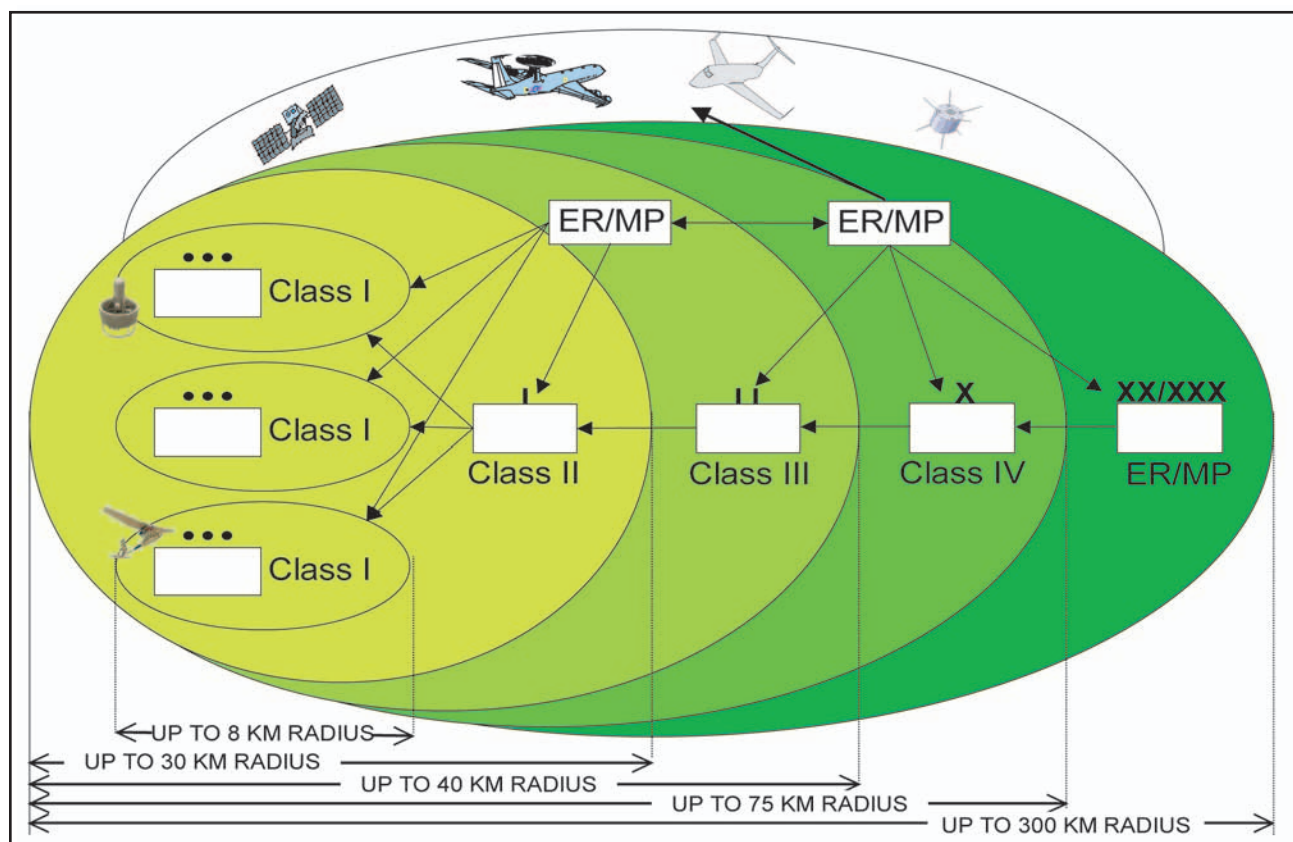


Figure D-4. UAVS Future Force Footprint

To prepare for the future operational environment, the Army is identifying the latest advances in relevant UAVS technology (airframes, payloads, payload management, as well as precision weapons delivery) and integrating these new capabilities into an architecture that is consistent with Army and DOD transformation. Extensive S&T work is also being conducted on vertical takeoff and landing UAVS to provide a hover-and-stare capability. The continued development and fielding of UAVS with advanced payloads is an important component of the Future Force's operational concept.

The Future Force will include an integrated family of UAVS that provide support from the platoon-level to the UE (Figure D-4). The FCS classes of UAVS will be fully integrated elements of the organic ISR capabilities. The FCS Classes I and II UAVS will provide the squad leader through the company commander the capability to see over the next terrain feature. The FCS Class III UAVS will enable a variety of combat functions such as precision fires, route reconnaissance and situational development at the battalion level. The FCS Class IV UAVS will serve as the UA's ISR workhorse to facilitate situational awareness, battle command, targeting support, lethal engagement, battle damage assessment (BDA) and force protection. The FCS lead system integrator recently selected the Northrop Grumman Fire Scout for development as the Class IV UAVS. While the path to the transformed Army of the future will focus on the Future Force, interoperability with fielded current systems will be maintained.

Future Force Aviation

The Army envisions organizing aviation assets at all UE levels and at the maneuver brigade. Teaming UAVS with manned systems will enhance operational fires, maneuver

and intelligence collection capabilities for the commander. Future Force aviation modernization efforts incorporate lessons learned, the changing operational environment and emerging Joint Force requirements. These efforts leverage key technologies in areas such as electronics, UAVS interoperability, air platforms, propulsion systems and weaponization. These efforts include:

- Fielding FCS Classes I through IV UAVS, ER/MP and small unit UAVS
- Ensuring digital interoperability for effective joint/combined force operations
- Fielding effective, affordable systems that enhance aviation survivability and improve Soldier stamina
- Improving aircraft operational readiness
- Replacing obsolete air traffic services equipment and maintaining compliance with future airspace usage requirements
- Digitizing of aviation logistics and modernizing aviation ground support equipment
- Developing the technologies to ensure fielding of unmanned systems, interoperability of manned/unmanned aircraft, and next generation/future system development
- Leveraging technology to reduce costs, extend aircraft service life and improve training
- Replacing OH-58D aircraft with the ARH to correct numerous capability gaps (interoperability, survivability, agility, versatility, lethality, and sustainability)
- Procuring new UH-60M/HH-60M aircraft
- Replacing aging fixed-wing aircraft with the FCA

- Continual modernization of the AH-64D to a Block III configuration
- Replacing aging UH-1 and OH-58 aircraft with a new COTS LUH

Army aviation modernization will transform into a modular, capabilities-based maneuver arm with a reduced logistics tail optimized for the joint fight. The AC/RC organizations will be structured to meet Strategic Planning Guidance to provide tasked-based formations and improve RC aviation responsiveness to the swiftly defeat the enemy/win decisively strategies.

Discussion of Key Aviation Materiel Programs

AH-64 Apache



Description. The AH-64 Apache is the Army's heavy attack helicopter for the Current and Future Forces. It is assigned to attack battalions and regimental aviation squadrons in both the AC and RC. Apache is a two-pilot, twin-engine attack helicopter designed to meet the Current Force mission requirements for reconnaissance and attack worldwide, day or night and under obscured battlefield and/or adverse weather conditions. It is a highly mobile and lethal aerial weapons platform with an array of armaments to destroy armor, personnel and materiel. The Apache has been in the Army inventory since 1986 and

an upgraded AH-64D Longbow began fielding in 1998. The AH-64D upgrades, among other improvements, adds a millimeter wave Fire Control Radar (FCR), Radar Frequency Interferometer (RFI), fire and forget radar-guided missile, and cockpit management and digitization enhancements. The combination of the FCR, RFI and the advanced navigation and avionics suite of the aircraft provides increased situational awareness, lethality and survivability. The Apache focused recapitalization program integrates a number of related initiatives to produce and/or retrofit aircraft across the Apache fleet to meet the objectives of the Army's recapitalization policy and to address lessons learned from recent combat operations and deployments. This program increases aircraft life by addressing high-maintenance demand/operating and support (O&S) cost drivers and incorporating a second generation forward looking infrared (FLIR) with the Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS). The program goals are to reduce the overall average airframe age of the fleet to the half-life metric of 10 years by 2010, increase the unscheduled mean time between removal by 20 percent for selected recapitalized components, and maximize the return on recapped components by 20 percent.

Program Status. The recapitalization of 597 AH-64As to the AH-64D Longbow configuration will be complete in FY10. Multi-year I delivered 232 AH-64Ds through FY02. A second multi-year contract was signed in Oct 01 for an additional 269 AH-64Ds with deliveries through FY06. An additional 96 AH-64A model Apache conversions to the D model Longbow configuration will occur with inductions beginning in Jan 07 and deliveries in FY08 through FY10. Following this conversion, the Apache modernization plan continues in 3QFY10 with the initiation of the Block III Apache Longbow program. The

Block III Longbow will provide a net-ready capability that integrates the Apache into the Future Force. Fielding of the M-TADS to the total fleet will begin in FY05.

Armed Reconnaissance Helicopter (ARH)

Description. As a result of analysis identifying existing capability gaps and subsequent Chief of Staff, U.S. Army (CSA) Aviation Focus Group decisions, in Feb 04 the CSA identified the need for 368 ARH aircraft. The ARH program was established to correct deficiencies in the OH-58D currently fulfilling the reconnaissance role.

The mission of the ARH is to provide a robust reconnaissance and security capability for the joint combined arms air-ground maneuver team. The ARH is a combination of a COTS airframe integrated with nondevelopmental mission equipment packages (MEPs). The ARH will be fielded to support the Current Force in the global war on terrorism and will possess the growth potential to bridge the capabilities gaps to the Future Force.

Program Status. A source selection implementing full and open competition will be the basis for selection of the Army's platform of choice, leading to a Milestone B decision in Jun 05. The System Development and Demonstration (SDD) planned efforts include integration of nondevelopmental item (NDI) subsystems onto an existing helicopter platform, developmental/operational testing and qualification to support the Milestone C low-rate initial production (LRIP) decision. An FRP decision review will be held in FY08.

Light Utility Helicopter (LUH)

Description. The LUH will conduct light utility missions in support of specified Army tasks.

The specified Army tasks will be conducted as part of an integrated effort with other Services, government agencies, nongovernmental organizations and civil organizations. These missions include homeland security support operations, general support operations, generating force medical evacuation (MEDEVAC) operations, and support for Army training centers and test activities.

The LUH will replace the UH-1 and OH-58A/C aircraft. Additionally, introduction of this aircraft will return a number of UH-60s back to the warfighting force. The LUH will be a COTS aircraft that is less costly to procure and operate than the UH-60. It is being procured as a Federal Aviation Administration (FAA) certified aircraft with training and maintenance activities shared between the manufacturer and the military.

The LUH will primarily support the CONUS, Alaska, Hawaii, U.S. possessions and territories, as well as Europe; however, it is worldwide deployable to noncombat permissive environments, will be instrument flight rule (IFR) capable, and will operate in all geographical environments and conditions. The aircraft will be found in both active and ARNG units.

Program Status. The Initial Capabilities Document (ICD) was JROC-approved in Dec 04. The LUH program is currently staffing the Capability Development Document (CDD) for Joint Requirements Oversight Council (JROC) approval. The LUH program is scheduled for Milestone C decision in Sep 05.

UH-60 Black Hawk

Description. The UH-60 is the Army's Current and Future Force utility and medical evacuation (MEDEVAC) helicopter. The UH-60 fleet is composed of 960 UH-60As, which



began production in 1977, and 638 UH-60Ls, which began production in 1989. Black Hawk can transport 11 fully equipped combat troops and external loads up to 8,000 pounds for the UH-60A and 9,000 pounds for the UH-60L. The UH-60 provides the force commander rapid and agile maneuver through air assault, general support, airborne C2 and MEDEVAC. It gives commanders the ability to initiate, conduct and sustain combat operations by providing internal and/or external lift of troops, weapon systems, supplies and equipment. In the airborne C2 role, it provides full joint and combined interoperability with other C4 and ISR elements to commanders at all echelons. The UH-60 is also heavily utilized in disaster relief operations, fire suppression, personnel recovery and VIP transport. The UH-60 is vital to the homeland security needs of our nation.

The Army will procure new UH-60M/HH-60M (MEDEVAC variant) in order to extend the fleet's lift/range capabilities, reduce O&S costs, improve transportability, enhance survivability, improve strategic transportability, integrate Air Warrior, digitize avionics and flight management systems that incorporate Global Air Traffic Management (GATM) requirements, and extend aircraft life. The UH-60M and HH-60M are expected to meet utility and MEDEVAC mission requirements through 2025.

Program Status. The UH-60M and HH-60M programs are currently in the SDD phase. The Milestone C decision is scheduled for the 2QFY05 with first unit equipped (FUE) in FY08. Initial fielding is scheduled to the special operations and AC divisions.

CH-47 Chinook

Description. The CH-47 Chinook is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 pounds. As the Army's only heavy lift helicop-



ter, its mission is to transport troops (including air assault), supplies, weapons and other cargo in general support operations. The CH-47 is vital to the homeland security needs of our nation. Secondary missions include medical evacuation, aircraft recovery, parachute drops, disaster relief, and search and rescue. These aircraft are fielded to heavy helicopter companies and special operations aviation. The CH-47F is expected to remain the Army's heavy lift helicopter until at least the 2020-25 time frame. The CH-47 recapitalization program will provide a more reliable, less costly to operate aircraft compatible with Army digital connectivity requirements with an extended aircraft life of approximately 20 years. Key modifications integrate a new machined airframe, an upgraded T55-GA-714A engine to restore performance capability, digital avionics, Air Warrior, Common Missile

Warning System (CMWS), emerging GATM requirements, enhanced air transportability, digital automatic flight control system (AFCS), and an Extended Range Fuel System II (ERFS II) for self-deployment missions. It will also incorporate reliability and maintainability improvements to include airframe tuning for vibration reduction, corrosion protection, digital source collector, and an automated maintenance program with 400-hour phase interval. Currently, there are 458 CH-47s in the inventory (421 CH-47s, 37 MH-47s). The recapitalization program rebuilds and upgrades all CH-47Ds and 61 special operations aviation MH-47s to the CH-47F/MH-47G configuration. In addition to recapitalization, a new build program will add new Chinooks to the inventory starting in FY06. These programs are funded to meet the Army's Aviation Transformation full requirement for Chinook aircraft.

Program Status. The CH-47F program received FRP approval on 22 Nov 04. Initial fielding is to the 160th SOAR (MH-47G) and the 101st AA Division (CH-47F).

Fixed-Wing

Description. The Army fixed-wing program is composed of approximately 300 aircraft. Fixed-wing aircraft provide efficient, effective transportation during peacetime and wartime operations. Fixed-wing aircraft provide for rapid movement of personnel, critical mission equipment/supplies and special electronic mission aircraft (SEMA) intelligence support. SEMA collect, analyze and disseminate signal communications and imagery intelligence in support of wartime requirements for combatant commanders, field commanders and national intelligence assets. Fixed-wing aircraft are routinely utilized in disaster relief operations, air movement of personnel and critical supplies, civil support, counterdrug, security

assistance and homeland security missions. The Army modernization plan calls for FCA to replace aging C-23 aircraft within the current budget and potentially replace C-12 aircraft in the future.

FCA provides the Army with a self-deployable, 2,400-km cargo aircraft with an 18,000-pound payload capability that performs short takeoffs and landings. FCA will be the predominant Army fixed-wing aircraft with 128 airframes assigned to the RC. The Army is expected to procure 33 FCA (FY06-11) to rapidly move personnel and critical supplies across the battlefield.

Program Status. The Army is currently reviewing its fixed-wing requirements for the Future Force. The cornerstone of this review was the Jan 05 approval of the FCA ICD.

The Aerial Common Sensor (ACS) is being developed as the replacement for the SEMA RC-12 and RC-7 aircraft. The ACS airframe selection was completed in the spring of FY04 with four aircraft scheduled for fielding in FY09. The ACS is described in this annex at Appendix 4, Battlespace Awareness.

Hellfire Family of Missiles

Description. Hellfire (HF) air-to-ground missiles are employed to destroy armored and high-value point targets. Semi-active laser (SAL) HF tracks laser energy delivered by ground or airborne designators while Longbow HF uses internal millimeter wave radar frequency (RF) for autonomous guidance. AH-64 Apache, ARH and OH-58D Kiowa Warrior utilize HF as their primary air-to-ground weapon for destruction of high-value point targets. The complementary precision point target engagement capability of the SAL HF and the fire-and-forget, adverse-weather capability of the RF HF provide the commander

with flexibility across a wide range of mission scenarios, permitting fast and decisive battle-field response.

Program Status. The Army will procure approximately 2,000 SAL HF for delivery in FY07 and FY08.

Advanced Precision Kill Weapon System (APKWS)

Description. APKWS incorporates laser guidance into the 2.75" Hydra-70 rocket to provide a lower-cost, lighter-weight precision weapon capable of engaging non-armored to lightly armored targets and providing an alternative to HF against targets such as buildings, command posts, ADA sites and other targets not requiring the HF. The APKWS program provides accuracy and lethality improvements to the family of unguided rockets. The AH-64, OH-58D and ARH will use APKWS to significantly improve aircraft stowed kill capability in scenarios requiring area/suppressive fires or precision engagement against non-armored or lightly armored targets.

Program Status. APKWS has not yet begun production.

Discussion of Aviation Supporting Materiel Programs

Aviation's supporting programs are essential to the support, sustainment and modernization/recapitalization of the aircraft programs discussed previously. These programs are essential to sustain and protect crews/aircraft, maintain interoperability with supported organizations, and field Future Force capabilities.

Aircraft Survivability Equipment (ASE). The Suite of Integrated Infrared Countermeasures (SIIRCM) will provide an enhanced

infrared countermeasure capability to aviation platforms. An advanced missile warning device with an improved countermeasure dispenser system and advanced flare munitions has been tested and is being installed onto selected platforms. Additionally, developmental efforts continue and will culminate with the acquisition of a multiband, solid-state laser jam head capable of defeating all known infrared threats. Aircraft undergoing recapitalization will have the required supporting wiring and hardware installed for the SIIRCM devices. The Army's RF-guided missile protection program was reinstated in the FY06-11 program plan and will employ the same acquisition strategy as the infrared program. The Army has also accelerated the fielding of critical equipment to enhance the Special Operations Forces (SOF) aircraft by equipping them with SIIRCM and the Army Suite of Integrated Radio Frequency Countermeasures (SIRFC). The Army believes that SOF modernization is among its highest equipping priorities, recognizing the critical role SOF plays on the joint team.

Aviation Electronics (Avionics). Avionics programs are designed to ensure aviation platforms meet combined arms and joint requirements for C2, mission planning, communications, navigation (to include worldwide civil airspace), information interchange and interoperability. Major avionics initiatives include fielding of the Joint Tactical Radio System (JTRS) in modernized aviation platforms, which will provide enhanced situational awareness, high-speed data and video exchange, and improvements in interoperability; migration of the Aviation Mission Planning Systems (AMPS) to a Joint Mission Planning System (JMPS), which will provide significant increases in mission-planning capabilities including a mission-rehearsal capability; new versions of the Improved Data Modem (IDM) as the centerpiece to digitization; Global Posi-

tioning System (GPS) equipment for improved weapons accuracy; and Global Air Traffic Management (GATM) equipment mandated when flying in civil airspace.

Aircrew Integrated Systems (ACIS). The ACIS program develops and fields equipment required to protect, sustain and enhance aircrew performance in sustained operations, on the ground, and during survival-evasion operations. Air Warrior is the primary ACIS program that provides integrated, modular life support equipment and chemical/biological protection, reduced weight/bulk, and significantly improved flight time in mission-oriented protective posture (MOPP) 4 gear. Air Warrior is described under the Discussion of Key Soldier Modernization Programs in this appendix.

Air Traffic Services/Air Traffic Control (ATS/ATC). ATS organizations must be specially equipped, highly trained, rapidly deployable on short notice, and capable of operating within the United States, international and combat airspace systems. They provide the full range of air traffic services from homeland security to major combat operations. Army ATS remains the core enabler for Army airspace C2, ensuring synchronized access of the increasingly congested joint airspace. ATS/ATC modernization fields smaller, lighter, more efficient, digitally connected terminal and en route communications and precision navigation systems for tactical and fixed base operations. Major programs include the Tactical Airspace Integration System (TAIS), the Air Traffic Navigation, Integration, and Coordination System (ATNAVICS), Mobile Tower System (MOTS), Joint Precision Approach Landing System (JPALS), and Global Air Traffic Management (GATM). JPALS and GATM are mandated by civilian air control authorities and joint Services to operate within 21st century airspace.

Aviation Ground Support Equipment (AGSE). To support and sustain full spectrum operations, aviation logistics must be as responsive and capable as the force it supports. To improve responsiveness, reduce vulnerability, and increase operational momentum, aviation must reduce the current in-theater aviation logistics footprint and digitize its logistics systems. The goal of AGSE modernization is to reduce logistical support requirements and improve aircraft operational readiness. Initiatives focus on improved automation and efficiency in three areas of development: modernization of test, measurement, and diagnostics equipment (TMDE); integration of seamless logistics management through automation systems; and replacement of aging ground support equipment.

Aircraft Component Improvement Program (ACIP). ACIP sustains engineering efforts to investigate, correct and qualify turbine engine and auxiliary power unit (APU) field-identified, safety critical and reliability deficiencies. ACIP inserts emerging technology, extends service life, drives down O&S costs and improves readiness by keeping engines operational and on wing. Return on investment is greater than 12:1 based on historical data using standard, approved costing models.

Training Aids, Devices, Simulators and Simulations (TADSS). TADSS modernization is critical to the combat effectiveness of our aircrews and maintainers, and in reducing operational costs. Aviation TADSS will leverage technology to provide effective and affordable combined arms/joint training and mission planning and rehearsal simulators that are current with the aircraft/systems they replicate. Simulator concurrency, fidelity, and combined arms tactical and mission rehearsal simulators/simulations that network virtual,

constructive and live simulation systems are major initiatives.

Army Aviation Summary

Army aviation's modernization efforts are focused on fixing warfighting deficiencies (particularly those uncovered during recent operations), aligning the aviation force with the Army's Future Force concept, and fielding aircraft/subsystems required to achieve full-spectrum operational capability. Aviation modernization is being achieved through force structure changes, training initiatives, and materiel modernization (AH-64D, UH-60M/HH-60M, ARH, LUH, FCA, Apache Block III, CH-47F, UAVS, Air Warrior and other subsystem programs). Aviation is supported by S&T programs designed to provide the technology base required to upgrade existing aircraft and meet the challenges of new aircraft/weapon system developments. The Army's commitment to divesting currently obsolete aircraft and ensuring balanced modernization across both AC and RC is being realized. The Army continues to review near-term aviation funding issues to best align programs, create more executable strategies and identify acceptable risks that allow tailoring of program requirements.

Ground Force Capabilities

Army ground maneuver forces with the capability to obtain a positional advantage and bring overwhelming combat power on the enemy with joint fires are essential to joint warfighting. Committed ground maneuver forces can rob an adversary of initiative and remove their freedom to continue hostilities. Sea, air and space dominance are invaluable, but only land dominance brings hostilities to a decisive conclusion—establishing and maintaining favorable security conditions for more comprehensive and enduring solutions to complex crises.

Our enemies seek sanctuary by hiding in protected facilities (mosques, churches and hospitals) to make it difficult for the commander who must discriminate among combatants and noncombatants. They create dug-in, camouflaged, concealed, hardened positions in caves or deep bunkers and mask these positions around innocent populations to avoid detection and attack by fires. With battlespace understanding and precision fires, Soldiers on the ground are often the only precise instrument that can locate, track and identify conflicted targets and attack them with lethal, accurate and timely effects using sensors linked to weapon delivery systems, Soldiers and decision makers.

The ground force's dominant maneuver and organic high-volume precision fires coupled with other joint precision fire capabilities for the close fight, will overwhelm the adversary, compelling him to flee his sanctuary or face battle to avoid defeat in detail. In either case, enemy dislocation, disintegration and destruction are inevitable through the combination of maneuver and fires enabled by ground force organic and joint ISR, and precision engagement capabilities.

Employing land force provides additional magnitudes of precision, perhaps impossible by other means, and is particularly effective in demonstrating national resolve. At ranges of just inches to strategic distances, the Soldier functions in the role of a sensor, decision maker, shooter and assessor.

The individual Soldier is the ultimate sensor. A Soldier observes, listens, feels and processes information. He analyzes, judges, thinks, prioritizes, decides and communicates what he knows and does so in real time. The Soldier is a shooter who designates, directs or calls for precision engagement. He does this from inches to the limit of his technology-enhanced

line-of-sight (LOS), in all weather conditions and terrain sets. Most importantly, he is disciplined and trained, understands purpose and intent, and can assess, first hand, the battle damage and the effects of precision engagement. In effect, the Soldier on the ground is the ultimate precision weapon.

On the asymmetrical, chaotic and nonlinear battlefield, the Soldier on the ground operates, and will continue to operate, as an indispensable part of the joint team. Today, operations in Afghanistan and Iraq reaffirm the Soldier's role as the centerpiece of our combat systems and formations. Soldiers enable persistent surveillance, reconnaissance and the right combination of maneuver, fires and information operations to achieve precision engagement. Soldiers bring the essential human dimension to warfighting dominance. They are the centerpiece of our systems and formations, now and in the future.

With the Soldier as our critical link to success, it is imperative to continuously develop Soldier systems that will enhance the Soldier's combat effectiveness. The Army's Soldier modernization program is a critical component to transforming today's Soldier into the Soldier envisioned in the Future Force.

Soldier Modernization

Soldier modernization encompasses the integration of Soldier systems and equipment that consist of everything that is worn, carried or consumed for individual use in a tactical environment.

Soldier modernization uses the "Soldier as a system" concept. In this concept, the Soldier, analogous to a combat platform, has numerous component parts that must work in concert for full effectiveness. Yet, modernizing the Soldier is uniquely different from modernizing all other major weapon system

platforms in two significant respects. First, the Soldier system frame is human; its loss is not measurable in dollars. Second, the Soldier is the common element for all Army major weapon system platforms and the operation of every system is affected by the quality of the Soldier and the synergy created by his ability to interface effectively and efficiently with the equipment and systems.

The Land Warrior is a principal program under the Soldier as a system concept that includes a modular fighting system for Soldiers that integrates many components and technologies into a lethal, survivable, mobile and situationally aware Soldier system. The Army has successfully demonstrated the value of the Land Warrior system and is examining ways to accelerate its production and fielding.

The Soldier modernization process is accomplished through the use of one of three Soldier system development paths: the Soldier Enhancement Program (SEP), the Clothing and Individual Equipment (CIE) program, and the Warrior Programs (represented by Core Soldier, Mounted Warrior and Air Warrior). Also in development are the Combat Support (CS) and Combat Service Support (CSS) Soldier. The SEP requires minimal research, development, test and evaluation (RDTE) effort and shortens the developmental phase of the life-cycle process through the use of COTS items with a goal of three years to field to Soldiers. The CIE program encompasses all combat, life support, ballistic and environmental protection items worn or carried by the Soldiers for individual use that are not addressed by the SEP or Warrior programs. Central Funding and Fielding (CFF) is the procurement mechanism that acquires and fields SEP and CIE program life-support and mission-enhancing equipment for individual Soldiers.

Rapid Fielding Initiative (RFI). In an effort to accelerate Soldier system fielding to operational forces, the Army is utilizing the RFI that leverages COTS technology and current SEP/CIE programs. RFI focuses on enhancing several areas of Soldier equipment: lethality (includes enhanced optics, weapon rails, target locators and communications); force protection/mobility (includes advanced combat helmet, knee and elbow pads, military operations in urban terrain or MOUT kit); and Soldier mission essential equipment (includes enhanced clothing items, hydration system and modular sleeping system). The RFI was an unprogrammed requirement in FY04 funded with supplemental dollars. In FY06, the RFI funding strategy is a combination of programmed and supplemental funds to support procurement of RFI-designated items. The RFI campaign plan fields RFI to the operational Army by the end of FY07.

Rapid Equipping Force (REF). Many equipment items are being fielded simultaneously to operational forces that are not part of the RFI, but part of another related activity, the REF. The REF takes operational guidance from the Army G-3, reports to the Vice Chief of Staff Army (VCSA), and works directly with the operational commanders to find solutions to identified operational requirements. These solutions may result in the redistribution of existing Army materiel assets, accelerated procurement of new or existing military/commercial materiel equipment, redirected fielding plans, and initiating development of a future materiel solution. Soldier protection has been a major focus area for both RFI and REF fielding activities in support of OEF and OIF. REF solutions include interceptor body armor (IBA), body armor set individual countermeasure (BASIC) body armor, Thermal Weapon Sights (TWS), night vision goggles

Area	Where We Were a Year Ago...	Where We Are Today!
Soldier body armor	Fielded 100,000 sets of body armor	Fielded 500,000 sets of body armor
Up-armored HMMWVs (UAH)	Fielded more than 1,900 OEF/OIF HMMWVs	Provided over 6,000 UAHs to theater. Current validated requirement for add-on armor (AoA) kits for HMMWV is 13,872. Produced over 10,000 AoA kits and installed over 9,500.
State-of-the-art Soldier equipment "RFI"	Partially fielded 8 BCTs OEF/OIF 3% operational Army fielded	Fielded 36 BCTs OEF/OIF 30% operational Army fielded
Bradley-BRAT	300 sets delivered 60 sets on contract	592 sets delivered. OIF requirement fully funded, executing plan to meet theater requirement in Sep 05
Stryker SLAT	2 SBCT sets funded 1 set in OIF, 1 in production	3 SBCT sets funded. 3rd set to be completed Apr 05
Stryker add-on armor (reactive armor)	In development and testing	Pending production decision. 1st SBCT(T) scheduled for completion in Jun 06
Counter IED Device	Aircraft Survivability Equipment (ASE)	Total of 2,334 Warlock systems fielded
Tactical and Small Unmanned Aerial Vehicle Systems (UAVS)	Total of 14 systems fielded	Total of 32 systems fielded
Aircraft Survivability Equipment (ASE)	Aircraft equipped w/legacy systems. Army reviewed threat/requirements and developed an Accelerated Fielding Plan for next generation ASE equipment.	Installation of CMWS/ICMD commenced Nov 04. Currently have 13 systems on CH-47s, 50 on UH-60s, and 3 on C-12s. Installations are ongoing in support of OIF/OEF. Goal is to upgrade 3,000+ Army aircraft.

Figure D-5. Protecting Army Forces



(NVGs), up-armored HMMWVs, SLAT armor, and commercial solutions like the Well-Cam and PackBots. The Well-Cam is a webcam attached to an Ethernet cable and a laptop to allow Soldiers in OEF to search wells for weapon caches. PackBots are commercially produced robots used to clear caves, buildings and compounds.

Force Protection. The REF and RFI, as well as other efforts that accelerate equipment to operational forces, are critical to enhancing our Soldiers' combat effectiveness and protection. In Iraq, the widespread use of improvised explosive devices (IEDs) by enemy forces has created the need to immediately provide additional force protection capabilities that include add-on armor kits for tactical wheeled vehicles such as the HMMWV, HEMTT, Palletized Load System (PLS) and FMTVs. Crew protection kits, which are integrated into the vehicle design, like the Up-Armored HMMWV, currently offer the best solution. The Army is pursuing the procurement and fielding of kits that provide steel doors with windows, back plate and steel plates for lower perimeter of the vehicle and ballistic windshields that provided the highest level of protection while maintaining equipment payload requirements for these vehicles. The add-on armor kit is currently funded for 10,416 HMMWVs, 1,080 HEMTTs, 1,150 FMTVs, 871 PLSs, 599 HET kits, 484 M915 line haul truck tractor kits and 926 M900-series 5-ton kits. The Army continues to pursue add-on armor kits for all families of tactical wheeled vehicles.

EOD Family of Systems. Another area of emphasis to enhance Soldier protection is the family of systems available to Soldiers in the Army's explosive ordnance detachment (EOD) units. These systems are critical to homeland security, force protection and support of the global war on terrorism. They provide EOD Soldiers at home and abroad with the capability to examine, identify and render safe ordnance effectively and safely. Lessons learned from OEF and OIF have increased the awareness and priority of EOD systems. Future acquisitions will include the Noninvasive Filler Identification (NFI) system, the Man-Transportable Robotic System (MTRS), and the Large IED Countermeasures Family of Systems. Each acquisition will be a modified commercial buy. NFI and large IED countermeasures are new critical capabilities; MTRS will provide an improved capability.

Combat Identification (CID). CID measures are another means to enhance Soldier protection. As a result of past CID efforts and lessons learned during Operation Desert Storm (ODS), significant efforts have been made to reduce fratricide with improved CID measures. In OEF and OIF, the widespread use of GPS systems and Blue Force Tracking (BFT) systems such as FBCB2 have proven to significantly reduce fratricide incidents through an improved capability in locating and identifying friendly forces on the battlefield. These systems and other CID measures are critical today in the fast-paced, nonlinear, distributed, simultaneous offensive-oriented battlefield environment.

In FY02, due to affordability issues, the Army terminated the Battlefield Combat Identification System (BCIS) designed to improve Current Force CID capabilities. The millimeter wave technology being developed under this program was transferred to Future Force development efforts. In an effort to reinstate a CID program, the G-3/G-8 have established a CID Overarching Integrated Process Team (OIPT) to update the strategy and concept for proceeding forward with a DOTMLPF integrated CID program that leverages advanced technology. This OIPT will provide an updated and approved CID concept and strategy; a CID action plan for the Current and Future Forces in a JIM environment, and a funding strategy to support a CID program in the FY06-11 FYDP. An Analysis of Alternatives (AOA) will be used to develop investment strategies properly focused on mission, task and purpose to meet joint warfighter requirements. Additionally, the Army Science Board will conduct an ad hoc study to assist the Army staff in their review and synchronization of CID efforts.

The Army's RFI, REF, EOD, CID and a host of other equipping efforts are challenging exist-



ing assumptions and processes to demonstrate a commitment to equipping Soldiers with the best equipment available and providing relevant and ready forces to the combatant commanders.

We are an Army at war and will meet the current demands while always changing to meet future challenges.

Discussion of Key Soldier Modernization Programs

Soldier as a System (SaaS)

Description. The SaaS provides a common architecture and framework across all Soldier domains (ground, mounted, air and core Soldier) that enables development and fielding of a common Soldier system platform and modular components which can be configured/reconfigured as required to suit all Soldier specialities. The SaaS concept provides common interfaces for Soldier communications with Future Force platforms and other SaaS equipment to enable total Soldier integration and compatibility with other Soldiers, fires and platforms. Each SaaS domain is described below with its associated modernization programs.

Ground Soldier System (GSS)

Description. The GSS is a modular, integrated fighting system for ground combatant Soldiers that integrates many components and technologies into a lethal, survivable, mobile and more situationally aware Soldier system. Land Warrior (LW) systems/components include multifunctional laser with digital compass, video camera and close combat optic; integrated headgear with helmet-mounted display and image intensifier; enhancements to protective clothing and individual equipment; and integrated individual Soldier computer/radio/GPS. The systems approach optimizes and integrates these capabilities, to include interface with the Army Tactical Internet, without adding to the Soldier's combat load or logistical footprint. S&T advances in warfighting concepts, SoS architectures, and technology components in areas such as enhanced navigation, system voice control, weight reduction, digital connectivity and power are being pursued through the Future

Force Warrior (FFW) Advanced Technology Demonstration (ATD) and will be inserted over time as the technology matures to meet LW objective requirements. The FFWATD is also charged with developing an analysis-of-variants system design concept that will enable expansion of the FFW concept to the other Soldier variants. This concept will contain design hooks and interfaces common to all Soldiers, providing a tailorable and reconfigurable system-of-systems design extensible to all Soldiers.

Program Status. The LW Block II (Stryker interoperable) program has been restructured to accommodate redefined Current Force requirements. The Army will field, from FY05-10, the Commander Digital Assistant (CDA) to all SBCTs, four light divisions (82nd, 101st, 10th, 25th), and two heavy divisions (4th ID, 1st CD) at a cost of \$379 million. Three variants of CDA will be fielded: a company commander variant, a platoon leader/sergeant variant, and a squad/team leader variant. Continued CDA developments are planned. The program is now focusing on the development of the Ground Soldier System (Land Warrior Block III) system in alignment with the FCS UA. GSS will be fielded to the Future Force. Throughout the LW development, the Army will seek opportunities to field mature capabilities to the force early before the fully integrated LW system is available for fielding.

Mounted Warrior (MW)

Description. The MW Soldier Systems (MWSS) encompasses all CIE required for use by combat vehicle crewmen (CVC) in eight functional areas: armor, artillery, air defense, mounted infantry, chemical, military police, ordnance and combat medics. The MWSS ensemble includes the CVC helmet, flame protective uniform, cordless communi-

cations, heads-up display (for vehicle commanders), and eye protection.

Program Status. The Army Requirements Oversight Committee (AROC) approved the ORD in Apr 04. The FUE is required in FY12 in alignment with fielding of the FCS UA.

Air Warrior (AW)



Description. AW is a Soldier system for helicopter crewmen that provides a new generation of integrated, mission-tailorable, combat-effective life support equipment and chemical/biological protection with reduced weight/bulk designed to improve aircrew endurance, mobility and performance. AW significantly improves flight time in MOPP 4 gear from 1.6 to

5.3 hours. Air Warrior systems/components include:

- Microclimate cooling system (MCS) that includes a microclimate cooling garment (MCG) and a small microclimate cooling unit that chills water and pumps it through small tubes embedded in the MCG
- Survival equipment subsystem that includes a survival gear carrier, soft and hard body armor, thigh holster and survival knife in ankle sheath
- Interim Modular Integrated Helmet Display System (MIHDS) with laser eye protection and a night vision device mount
- Over-water survival subsystem that includes a personal flotation device, survival egress air (breathing oxygen), and an

inflatable raft (LRU-18U) that is integrated into the ensemble and worn by the crew member

- NBC protection with a modified chemical protective undergarment, M45 or M48 protective mask with blower unit, gloves and overboots
- Aviation clothing items that include modified aircrew BDU and the Aircrew Cold Weather Garment System

Future AW system spiral development improvements focus on the technology insertion of improved and/or enhanced components reflecting emerging technologies defined in AW Blocks 2 and 3.

Block 2 developmental efforts are underway and will add an Aircraft Wireless Intercom System (AWIS) and the Electronic Data Manager (EDM). The AWIS will enhance crew member performance by providing the capability for wireless communications within the aircrew and with ground crew or ramp support personnel such as in a tactical forward area rearm and refueling point (FARRP). The EDM, in the form of a digital kneeboard, will provide a capability to the aircrew to generate, store, display and distribute digital information and will interface with BFT systems.

Block 3 efforts will increase performance and capabilities by adding a fully compliant MIHDS helmet. The MIHDS helmet will provide, as a baseline, the same safety performance characteristics as the HGU-56/P helmet (impact, sound attenuation, retention, etc.). The MIHDS will be tailorable and compatible with the Apache helmet-mounted displays and head tracking technologies and will also provide an improved day/night helmet-mounted display symbology for those aircraft that currently lack this feature. These helmet-mounted displays will be compatible with aircrew

prescription spectacles, chemical/biological (CB) protection, oxygen masks and laser eye protective technologies. CB protection will be donned in flight without removing the helmet. MIHDS will provide the user complete laser eye protection in the visible through the near infrared portion (400 to 1,400 nanometers) of the spectrum and will also provide nuclear flash protection.

Program Status. AW Block 1 production began in FY03 and fielding began in 2QFY04 to the 160th SOAR(A). Block 2 development began in FY02, and Block 3 development began in FY04.

Enhanced Night Vision Goggles (ENVG)

Description. The next generation of night vision goggles for the Soldier is the ENVG. It combines both an uncooled thermal and an image-intensification (I2) capability into a single device. The ENVG provides Soldiers with the ability to engage and execute close combat in all levels of light, to include the zero illumination conditions found in caves and underground environments, adverse weather conditions and under battlefield obscurant conditions. This is a system component of the Soldier Warrior programs.



Program Status. This program is in concept and technology development phase with a Milestone B decision in early FY04. The Milestone C decision is scheduled in late FY05 with production beginning in FY06.

Thermal Weapon Sights (TWS)

Description. Thermal Weapon Sights are a family of low-cost, lightweight, man-portable IR imaging devices of high resolution to be

used for surveillance and fire control of individual and crew served weapons during both daylight and darkness. TWS operate in adverse weather and dirty battlefield scenarios including light foliage, smoke, dust and camouflage, and will be fielded to Current and Future Forces as a component of the LW program.



Program Status. Medium and heavy TWSs were fielded to the Special Operations Forces, 101st Airborne Division, 82nd Airborne Division and the 3rd Infantry Division in support of OEF and OIF and has contributed significantly to Soldier survivability and lethality. Light TWS was fielded to the Rangers in 4QFY04 and is now being fielded to other special operations forces.

Objective Individual Combat Weapon (OICW) Increment 1

Description. The OICW Increment 1 builds on the flexibility of the existing Modular Weapon System (MWS). It sets the stage for future scalable, modular effects that allow the tactical commander to tailor the capability and weight to meet the needs of any operation. It will be the foundation for a family of small arms that features commonality of parts, interface, and updated training that more closely matches tactical reality. Variants of the OICW (carbine, special compact (SC), designated marksman (DM) and light machine gun (LMG)) will fill a variety of roles throughout the Current and Future Forces and the U.S. military at large. The OICW Increment I will replace the M16/M4 family of small arms and other weapon requirements (M203 grenade launcher, M249 squad automatic weapon (SAW) and selected M9 pistols) throughout the U.S. Army. Other

U.S. Armed Services or government agencies may adopt it to suit their needs.

Subsequent increments (Increments II and III) will include new and advanced technologies that will enable the development and fielding of lighter weight and improved ammunitions, nonlethal munitions, precision high-explosive airburst (HEAB) munitions systems, embedded training and simulators, lighter-weight direct-view sights, improved multifunctional lasers, micro electro-mechanical systems, nano-explosives, maneuverable projectiles, advanced shaped-charge designs, electronic fusing and improved materials that will increase operational readiness and effectiveness as well as reduce total life-cycle costs. The OICW Increment 1 will be compatible with the digital battlefield and will provide the lethality upgrade for the LW program. The Army is still completing capabilities documentation for this system.

Program Status. The OICW Increment 1 is a major system acquisition program (ACAT II) in the SDD phase with a Milestone C decision scheduled in 4QFY05 and FUE in FY06.

XM307 Objective Crew Served Weapon (OCSW)

Description. XM307 is a close combat support weapon that will enable platforms to



quickly react with a high-volume fire against troops in the open and lightly armored vehicles. The XM307 will provide 360-degree engagement out to 800 meters under day/night and adverse weather conditions while stationary and on the move at elevations from -20 degrees to +60 degrees. The XM307 fired

remotely and by the crew from a protected position will fire high-explosive airburst, armor-piercing, kinetic energy, thermobaric and nonlethal ammunition from a common magazine, selectable by the crew. This weapon will have an automatic ammunition loading system with a manual backup to allow ammunition to be fed from the right or left side of the weapon and provide self or remote correction of malfunction. It will contain a test and evaluation (T&E) mechanism capable of providing rapid target acquisition. The XM307 weighs approximately 50.3 pounds and is capable of firing 25 mm air-bursting munitions designed to defeat defilade targets out to 1,000 meters and suppress area targets out to 2,000 meters. It includes a full-solution fire control that includes direct-view optics; full-solution ballistic calculation; digital range finder; CCD video; tracker module; digital compass; environmental sensors as well as many other options. It is being considered to replace selected M2 and MK19 grenade machine guns. The Army is still conducting mission analysis and completing capabilities documentation for this system.

Program Status. The XM307 program transitioned from the tech base in FY04. The Milestone C decision is scheduled in FY07.

Lightweight Laser Designator Range Finder (LLDR)

Description. The LLDR is a man-portable, modular, target location and laser designation system. The system consists of a target locator module (TLM) and a laser designator module (LDM). LLDR provides Soldiers with a man-portable capability to observe and accurately locate targets, digitally transmit target location data to the tactical network, and laser-designate high-priority targets for destruction by precision munitions. LLDR greatly

increases the ability to recognize targets at night and under battlefield conditions.

Program Status. LLDR is currently funded for 371 systems for procurement and fielding to Army units. The 25th ID received 21 LLDRs for their Operations Iraqi Freedom and Enduring Freedom (OIF and OEF) deployments and the 3rd ID received 20 systems in FY04.

Nonlethal Capabilities Set (NLCS)

Description. Nonlethal capabilities provide commanders options when confronting situations in which the use of deadly force is not the preferred response. NLCS provide flexibility by allowing forces to apply measured force with reduced risk of serious noncombatant casualties, but in a manner that provides force protection and effects compliance—ensuring the success of the military mission.

The NLCS can be rapidly deployed by military transport or commercial carrier. NLCS consists of six categories: counterpersonnel systems, countermateriel systems, protective equipment, enhancement devices, training devices/allocations and support equipment.

Program Status. NLCS is currently being fielded to units supporting and preparing to support OIF/OEF operations. Follow-on fielding is scheduled to begin in FY06.

Ground Force Modernization

Annex B, Organization, of the *2005 Army Modernization Plan* provides details on the Army's two primary ground force modernization efforts, the accelerated development and fielding of six SBCTs from 2001 to 2008 and the development and initial fielding of a UA maneuver brigade equipped with FCS from 2005 to 2014 to bring Future Force capabilities into the Current Force. The USF process

will field these units with capabilities achieved from a complete set of unit equipment. Under the SoS approach, the unit must demonstrate the ability to operate interdependent systems together to achieve an IOC for the unit. In FY03, the first SBCT completed fielding and operational testing to achieve IOC. It has since been deployed in support of OIF.

Stryker Brigade Combat Team (SBCT).

The SBCT is inherently a precision unit. The force design of the SBCT provides the Army with dominant maneuver and precision engagement capabilities not found in any other Army brigade-sized unit. Specifically, the RSTA squadron, equipped with TUAVs and ground-based HUMINT specialists, provide the commander with unequalled situational understanding. The networked command and control architecture that features FBCB2, allows the commander to provide the same picture to lower echelons and major combat platforms, such as the Stryker vehicle, thereby establishing a real-time friendly force operational picture for the unit. The SBCT



also features organic, ground-based sniper teams—the essence of precision strike and a critical combat requirement that has once again been validated during the ongoing war against terrorism.

The SBCT's force application capability is truly global. C-130 transportable, the unit can rapidly deploy to austere environments,

thereby overcoming enemy area-denial and anti-access efforts, and can quickly mount offensive operations with minimal reception, staging and integration. Although it excels in the midpoint of the operational spectrum, it can fight effectively as a fully committed unit in major engagement and battles with augmentation (such as attack aviation and/or rocket artillery). With its superior tactical mobility and excellent battlefield situational awareness, the SBCT can also execute difficult security missions such as guard, cover, screen, counterreconnaissance and rear-area combat operations. The superior off-road maneuverability of the Stryker vehicle, combined with its dismounted infantry assault capability featuring robust antitank weaponry, ensures the SBCT can very effectively engage and destroy enemy armor in close, complex and/or urban terrain.

The Army is currently benefiting from the capability of the SBCT in OIF. The unit is maximizing the capabilities of this transformational organization in combat operations. Examples are increased speed (60+ miles per hour) and survivability (protection against rocket-propelled grenades (RPGs) and IEDs) provided by the Stryker family of vehicles in the brigade; near-seamless situational awareness down to the combat vehicle crew level allowing quick execution of changing missions; high rate of reliability of the Stryker vehicles; and high confidence in the vehicle and its capabilities by the Soldiers in the brigade.

The capabilities of the SBCTs will be operationally enhanced when the remaining two variants, the Mobile Gun System (MGS) and the NBC Reconnaissance Vehicle (NBCRV) are fielded in FY07 and FY08. The MGS provides rapid and lethal direct fire to support assaulting infantry and the NBCRV provides NBC situational awareness to increase the combat power of the BCT.

The Army is exploring alternatives in the upcoming program years that will further enhance the SBCTs' ability to track, surveil, and ultimately engage and destroy targets. Among the systems being examined are precision mortars, advanced artillery munitions such as Excalibur, and initiatives designed to further enhance the SBCTs' situational awareness and effectiveness: Joint Tactical Radio System (JTRS) to provide joint inter-connectivity command post level, Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)—a beyond-line-of-sight (BLOS) communications system; mounted mast sensor improvements for the FSV and RV; Lightweight 155 mm Howitzer (LW 155)—a lighter automated towed howitzer system with greater survivability, lethality, range, precision and strategic deployability; Warfighter Information Network-Tactical (WIN-T); and the Distributed Common Ground System-Army (DCGS-A).

Future Force Development. The Future Force concept embodies precise and dominant maneuver coupled with precision engagement through a combination of maneuver, fires and information dominance. As an offensive-oriented force, it conducts operational maneuver from strategic distances executing synchronized, distributed operations as part of a Joint Force to destroy key enemy capabilities in a distributed, non-linear battlespace. It provides seamless C4 and ISR, FCS, integrated sensors, attack and reconnaissance helicopters, expanded maneuver and fires with standoff, LOS and non-line-of-sight (NLOS) capabilities. These attributes enable the Joint Force to achieve total disintegration, dislocation and destruction of enemy forces from tactical through operational levels. Direct lethal action will contribute to the following joint efforts:

- Destroy and degrade enemy anti-access systems such as long-range missiles and artillery, unconventional forces, enemy surveillance and targeting capabilities
- Participate in the destruction of enemy precision engagement systems. This represents a key task, given the significant threat that enemy systems represent to Joint Force freedom of action and maneuver
- Seize key terrain and facilities required to support force flow and decisive operations, extension of the area of influence, and isolation of enemy forces
- Degrade key enemy capabilities (C4, ISR, and logistical structures) essential to enemy offensive operations
- Provide essential C4, ISR and logistical support to the Joint Force
- Support the joint force commander's information operations to gain momentum superiority

FCS-Equipped Unit of Action (UA) Maneuver Brigade. Although the Army has not finalized a complete Future Force design, it has approved an organizational and operational (O&O) plan for a UA maneuver brigade equipped with FCS.

This UA's organizational design includes UAVS at each echelon to enhance the organization's RSTA capability. This capability is viewed as essential to the success of UA operations to build and maintain situational awareness and understanding before, during and after tactical operations. An aviation squadron within the UA will integrate with UAVS to provide a robust reconnaissance capability with manned and unmanned aviation (man-in-the-loop) in support of the brigade mission. Additionally, they will engage to destroy high-payoff

or most dangerous target sets with organic weapons or by employing external networked fires under brigade control.

The NLOS battalion is the UA's primary provider of destructive, suppressive, protective and special purpose fires that enable the UA to conduct decisive operations. It is envisioned that the NLOS Cannon will provide accurate, reliable, responsive, on-demand, 24-hour, all-weather, all-terrain and close-supporting fires with a wide array of precision and nonprecision munitions. The NLOS Launcher System provides a networked system of missile launchers with command and control systems that will provide both precision and loitering attack munitions. NLOS mortars (organic to the UA combined arms battalion) will also provide supporting fires to the UA. The combination of NLOS mortar, cannon, and launcher systems in the UA and HIMARS in the UE will provide the future commander with a greatly increased precision and lethal capability.

Discussion of Key Ground Force Materiel Programs

Abrams Tank



Description. The Abrams tank modernization strategy supports the Army Campaign Plan by providing the Abrams tank the lethality, survivability and fightability necessary to

defeat advanced threats well into the future. The Abrams tank closes with and destroys enemy forces on the integrated battlefield using mobility, firepower and shock effect. The 120 mm main gun on the M1A1 and M1A2 Family of Vehicles, combined with the powerful 1,500-hp turbine engine and special armor, make the Abrams tank particularly suitable for attacking or defending against large concentrations of heavy armor forces on a highly lethal battlefield, as well as in support of the global war on terrorism. The Abrams recapitalization program is a modernization program focused on the current armored force and seeks to ensure the Abrams main battle tank remains relevant to the developing Future Force until fully replaced by the MGS variant of the FCS by maintaining combat overmatch.

The Army has a recapitalization procurement and modernization strategy under the Abrams Integrated Management (AIM) Program that provides M1A1 tanks with rebuilt AGT1500 engines and improvements to selected tank subsystems that bring the tanks to a zero-hours/-miles rebuild condition. The AIM Program provides selected technology insertions designed to extend the service life of the fleet while reducing O&S costs. Some of these improvements include revised hull and turret network boxes, a digital electronics control unit, a driver's hatch interlock sensor system, an upgraded tank commander's panel, an eye-safe laser range finder, a pulse jet air system, and a battlefield override (mechanical fuel and transmission bypass) system. A development and integration effort leading to the insertion of a single second-generation thermal sensor in the gunner's primary sight is currently underway.

The M1A2 SEP program began in FY99 and selectively upgrades M1 tanks or retrofits M1A2 tanks with rebuilt critical components

that bring the tanks to a near zero-hours/-miles condition. M1A2 SEP tanks have a second generation FLIR sensor in the commander's independent thermal viewer (CITV) to enhance target acquisition and significantly improve lethality, hardware and software that supports Army digitization and the FBCB2 system, digital diagnostics system that enhances tank maintenance and sustainment, thermal management system that reduces the tank's battlefield signature, and an improved armor system that improves survivability against emerging threats.

The Abrams modernization strategy also includes a major improvement program for the current AGT1500 engine coined the Total Integrated Engine Revitalization (TIGER) Program. This effort serves to execute an integrated program that will sustain the AGT1500 engine for the benefit of the entire Abrams tank fleet with an average mean time between depot replacement (MTBDR) of at least 1,400 hours. The TIGER Program establishes a single standard for overhauled engines, addresses current readiness issues, improves durability, reduces O&S costs, and implements automated data collection in support of fact-based maintenance decisions. The development of the TIGER Program will continue through FY05, with procurement beginning in FY06.

Program Status. The Army completed fielding of M1A2 SEP tanks to the 1st Cavalry Division and is scheduled to complete fielding to the 4th Infantry Division in FY05. Efforts are underway to field M1A2 SEP tanks to the 3rd Armored Cavalry Regiment beginning in FY07 and two squadrons to the 11th Armored Cavalry Regiment beginning in FY09. Currently, the Army is projected to procure 803 M1A2 SEP tanks.

The Army completed fielding M1A1 AIMs to 2nd Infantry Division and the 1st Armored and 1st Infantry brigades in Europe. The next units to be fielded are the brigades of the 1st Armored and 1st Infantry Divisions at Fort Riley, the Army prepositioned stock (APS) and the 3rd Infantry Division beginning in FY07. Currently, the Army is projected to procure a total of 1050 AIM tanks. Modernization of the ARNG continues through cascading of M1A1 HA tanks from the AC.

Bradley Fighting Vehicle

Description. The Bradley recapitalization program rebuilds and upgrades M2/M3A2s to the most modernized M2/M3A3 configuration. The A3 adds two second generation forward looking infrared (2GF) devices (one in the commander's independent viewer (CIV) and one in the improved Bradley acquisition sight (IBAS)), a position/navigation (POS/NAV) system, core electronic architecture, and digital C2. These upgrades improve the crew's ability to navigate, pinpoint and identify friendly and enemy positions, and engage two separate targets nearly simultaneously in both day and night conditions. Also, the digital C2 provides a near real-time integrated data link between the M2A3 and other combat vehicles and headquarters.



Program Status. The 1st Cavalry Division and 4th Infantry Division will be fielded with 408 M2A3 Bradleys. The 3rd ACR will be

fielded with 131 OIF recapitalized Bradley Cavalry/Scout vehicles (M3A2 OIF configuration) containing FBCB2, the IBAS and a ballistic fire control system. Selected III Corps engineer battalions will be fielded with 342 converted M3A2 ODS-D vehicles. These digitized vehicles will vastly improve the lethality, survivability and situational awareness for the engineers and supported units. Further digitization to the active fleet will be determined as the Army builds the FY06-11 program plan.

Stryker Family of Armored Vehicles



Description. The Stryker Family of Armored Vehicles is the centerpiece combat and combat support platform for the SBCTs. Two variants of the Stryker will be fielded: the Mobile Gun System (MGS) and the Infantry Carrier Vehicle (ICV). There will be eight additional configurations of the ICV: Reconnaissance Vehicle (RV), Mortar Carrier (MC), Commander Vehicle (CV), Fire Support Vehicle (FSV), Engineer Squad Vehicle (ESV), Medical Evacuation Vehicle (MEV), Antitank Guided Missile Vehicle (ATGM), and Nuclear, Biological and Chemical Reconnaissance Vehicle (NBCRV). Stryker capabilities include:

- Strategically responsive and deployable on the complete U.S. Air Force (USAF) family of aircraft
- Roll-on/roll-off combat capable with minimum preparation
- Superior situational awareness with inter-netted/networked communications

- Survivability enhanced by all-around 14.5 mm armor piercing and 152 mm artillery airburst protection (add-on armor provides protection against RPG antitank weapons)
- Accurate target acquisition with Long-Range Advanced Scout Surveillance System (LRAS3) mission package
- Accurate target engagement with Remote Weapon Station (MK 19 grenade launcher and/or M2 .50 caliber machine gun)
- Decisive offensive action with dismounted infantry assault (ICV)
- Bunker-busting capability with 105 mm cannon (MGS) for roles in immediate fire support of dismounted infantry operations and with TOW bunker-buster munitions (ATGM)
- Responsive indirect fires with 120 mm dismounted mortar (MC)
- Antitank capability with TOW 2B (ATGM) and Javelin-equipped dismounted infantry (ICV)
- Mobility enhanced by mine plow, roller and detector (ESV)
- Integrated NBC sensor capability (NBCRV)

The Stryker provides a unique family-of-systems approach that maximizes commonality and integrated capabilities while filling an immediate capabilities gap in the Current Force. Supporting Stryker fielding is a complete new home station equipment training package for both operators and maintainers.

Program Status. Planned procurement is for 2,444 vehicles consisting of two variants: ICV and MGS. The Stryker program obtained an FRP decision on seven of the 10 variants

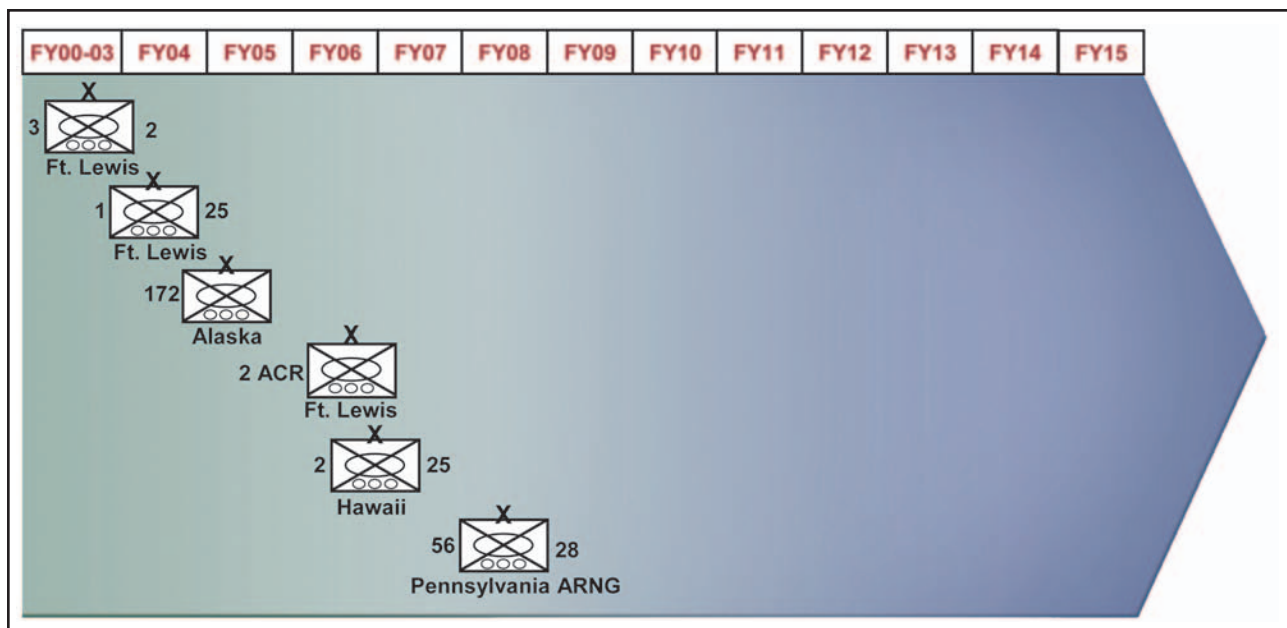


Figure D-6. SBCT Fielding Schedule

in Feb 04; these include the ICV, RV, CV, FSV, ESV, MEV and ATGM. The Army has fully funded, and the Secretary of Defense (SECDEF) has authorized, the procurement and fielding of six SBCTs to fulfill the defense strategy and national security requirements. This year, Congress added additional funds to support the building of a seventh SBCT. HQDA is currently working the plans for this new organization. Figure D-6 provides the current SBCT fielding schedule.

Lightweight 155 Howitzer (M777)

Description. The Army has a requirement for an advanced, towed, lightweight 155 mm howitzer, with self-locating and aiming capability, that meets increased operational thresholds for mobility, survivability, deployability and sustainability. The M777 Lightweight 155 mm Howitzer is funded in the FY06-11 program plan as a weapon system that meets this requirement. A joint U.S. Marine Corps (USMC)/Army program, the M777 will provide accurate, reliable, responsive, on-demand, 24-hour, all-weather and all-terrain close support fires to maneuver forces.

Program Status. In Nov 02, the M777 entered LRIP for 94 USMC nondigitized howitzers to be delivered in FY04 and FY05. The FY06-11 program plan funds the procurement and fielding of the digitized, self-locating, self-aiming/-pointing upgrade of this system (M777E1) to selected Army units, beginning with the SBCTs in FY06-08. USMC howitzers will be retrofitted for the digitized upgrades once fielding to Army units begins. A multi-Service operational test and evaluation (OT&E) will be conducted during Oct 04, and a multi-year production decision is planned for 2QFY05.



Future Combat Systems (FCS)

Description. The core of the Future Force's maneuver UA is the FCS, comprised of 18 manned and unmanned platforms centered around the Soldier and integrated by a secure battle command network. FCS will provide Soldiers with significantly enhanced situational awareness—enabling them to see first, understand first, act first and finish decisively. This allows the Joint Force to achieve overmatching combat power with the lethality, agility, sustainability and versatility necessary for full-spectrum military operations from small-scale contingencies to stability and support operations to major combat.

The FCS comprises a family of advanced, networked, air- and ground-based maneuver, maneuver support, and sustainment systems. FCS employs a revolutionary, integrated

architecture to help meet the commander's requirements. These networked capabilities include networked communications, networked operations, sensors, battle command systems, training platforms, and both manned and unmanned reconnaissance and surveillance capabilities. These capabilities will enable improved situational understanding and operations at a level of synchronization heretofore unachievable.

Program Status. The first major step for the FCS was achieved in May 03 with the successful approval of the Milestone B decision. This decision confirmed the feasibility of technology and initiated implementation of the original acquisition strategy to achieve an IOC in 2010 and a full operational capability (FOC) by 2012. In Jul 04, the FCS program was restructured to reduce program risk while simultaneously improving the Current

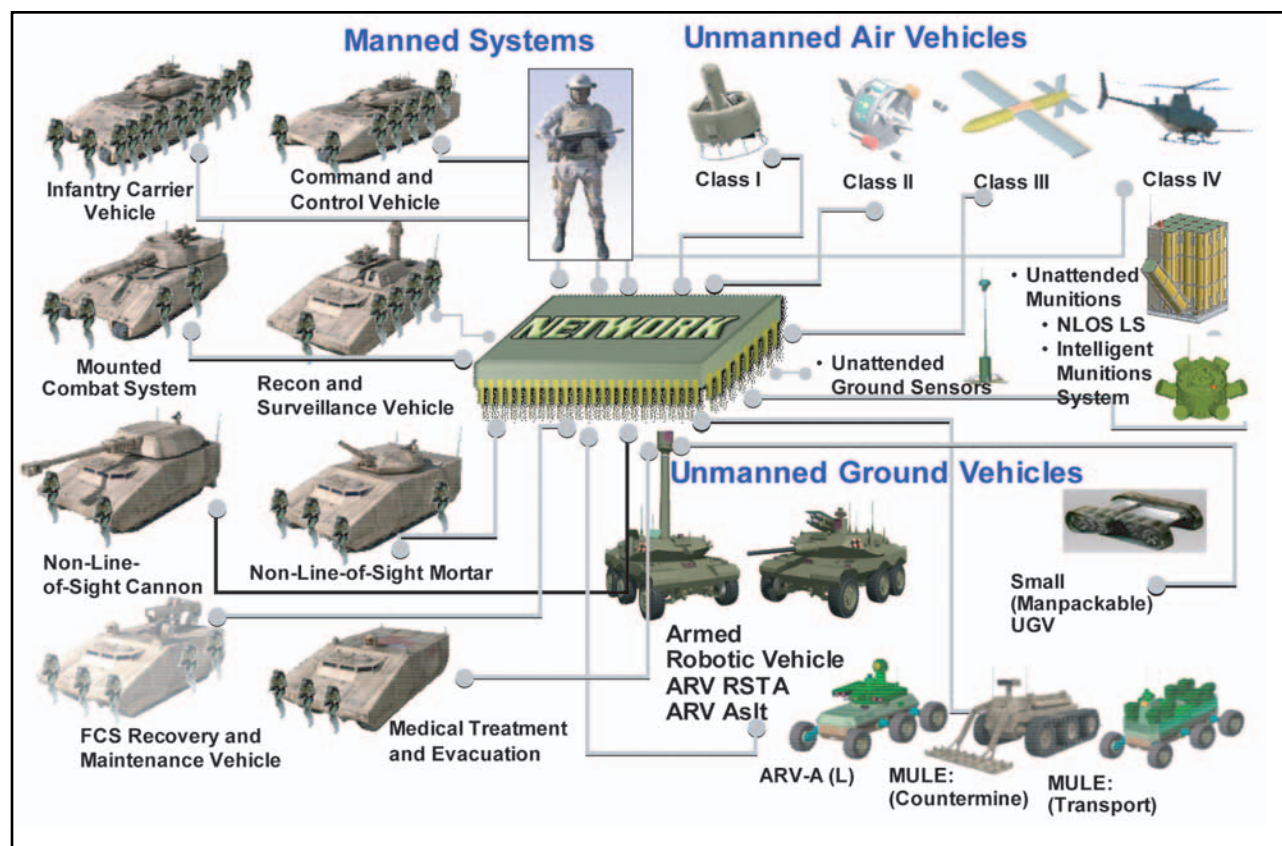


Figure D-7. Future Combat Systems

Force with the insertion of FCS technologies that will close Current Force capability gaps while maintaining the Army's focus on FCS UA development. This will result in an FCS-equipped UA (all 18 + 1 systems) IOC in 2014 and FOC in 2016. The acceleration of FCS technologies will be accomplished by a series of four "spirals" into modular BCTs (heavy, infantry and Stryker).

The first of four spirals will begin in FY08 with T&E by a single Current Force unit (evaluation BCT or E-BCT) that will serve as the consistent organization for the development and evaluation of FCS-related systems. Spiral 1 will start fielding to the Current Force in 2010. Subsequent spirals will be fielded initially to the E-BCT, then to select Current Force modular BCTs. The priority of the spiraling effort is initially to the network, unattended munitions and sensors, and unmanned systems. Elements of the network will be spiraled into each of the four spirals. Manned Ground Vehicle (MGV) development will be extended out to meet the 2014 IOC date for the first FCS-equipped UA. However, the Non-Line-of-Sight Cannon (NLOS-C) will lead MGV development and deliver preproduction NLOS-C systems in 2008 and begin fielding Block 0 common chassis of NLOS-C prototypes in 2010.

Non-Line-of-Sight Cannon (NLOS-C)

Description. The NLOS-C is currently embedded in the overall FCS program architecture. The NLOS-C will provide accurate, reliable, responsive, on-demand, 24-hour, all-weather and all-terrain close supporting fires as an integral part of the Future Force. It will utilize the Modular Artillery Charge System (MACS) and inductively set fuses, such as the M762/A1, M767/A1 and multiple option fuze, artillery (MOFA). As the primary fire support asset available to the UA commander, it will

provide sustained fires capability for both precision (Excalibur) and area fires (suppression) to forces in combat and are networked to joint fires. Its networked capability and high rate of fire enable it to provide rapid fires at extended ranges. System development will be integrated with the development of a suite of munitions and complementary ISR capabilities that locate, track, identify, engage and destroy all target types with effects scaled by the mission and target set.

Program Status. The Army, in partnership with the Defense Advanced Research Projects Agency (DARPA) has established an aggressive, collaborative demonstration program in support of the FCS initiative. This demonstration included both live-fire and mobility phases. An FCS program manager has been assigned to DARPA and the overall management authority for the FCS program resides with the Program Executive Officer (PEO) for Ground Combat Systems. NLOS-C transitions to SDD as a component of FCS.

Non-Line-of-Sight Launcher System (NLOS-LS)

Description. The NLOS-LS is currently part the overall FCS program architecture. The NLOS-LS is a networked system of missile launchers with an integrated command and control system that will provide precision and loitering attack munitions (PAM and LAM). It will provide accurate, reliable, responsive, on-demand, 24-hour, all-weather and all-terrain fires as an integral part of the Future Force. NLOS-LS will provide networked, extended-range targeting and precision attack of armored, lightly armored and other stationary and moving targets during day, night, obscured and adverse weather conditions. The system's primary purpose is to provide responsive precision attack of high-payoff targets (HPT) in support of the UA

in concert with other UA NLOS systems as well as other Army, JIM system capabilities. Future technology improvements will allow the system to provide a discriminating capability via automatic target recognition (ATR) and contribute to battle damage assessment (BDA). The system has flexibility to respond to all UA sensors, SOF, and other UE joint and multinational elements. The NLOS-LS will be a self-contained system with multifunctional munitions capability. The system will be capable of multimodal transport and be fired from the ground or from manned/unmanned tactical transport vehicles. NLOS-LS consists of the container launch unit (CLU) housing individual containerized munitions, PAM and LAM, and an onboard command and control capability. Operational requirements may necessitate the development of additional munitions variants such as thermobaric and nonlethal applications. Variants will be the smallest number that satisfies all requirements. The system has an external mission planning software application designed to operate on the future battle command system for planning and execution of multiple and simultaneous missions, including engagement with different munitions.

Program Status. The Army, in partnership with the DARPA, is involved in an aggressive, collaborative demonstration program in support of the NLOS-LS initiative that transitioned to an Army SDD effort in FY04. An NLOS-LS Task Force was formed under PEO Tactical Missiles to facilitate the transition and coordinate actions to ensure initiation of NLOS-LS Block I SDD.

High Mobility Artillery Rocket System (HIMARS)

Description. HIMARS provides Current and Future Forces with continuous, all-weather, precision, medium- to long-range rocket and



missile fires to a depth of 300 km. Mounted on an FMTV chassis, HIMARS is C-130 transportable, combat loaded, and provides full Multiple Launch Rocket System (MLRS) family of munitions (including GMLRS and ATACMS) capability, yet requires 70 percent fewer airlift resources to transport than the current M270 MLRS launchers. HIMARS Advanced Concept Technology Demonstration (ACTD) prototype launchers were successfully employed in OIF, providing precision fires in support of USSOCOM and Army operations.

Program Status. HIMARS is in LRIP with FUE programmed for 2QFY05 to the XVIII Airborne Corps.

Discussion of Key Ground Force Munitions Programs

Army Tactical Missile System (ATACMS) Family of Munitions

Description. The ATACMS family of munitions (FOM) provides the joint force commander with a surface-to-surface, all-weather, responsive, deep-strike weapons capability for the attack of area and point targets from ranges of 25-300 km. ATACMS has been produced since 1990 in a logical series of improvements to range, accuracy and lethality. ATACMS Block I proved its effectiveness

during Operation Desert Storm. A significant number of Blocks I, IA and Quick Reaction (QR) Unitary were successfully employed in OIF in support of USAF, USMC, USSOCOM and Army operations. The entire ATACMS FOM is launched from improved MLRS M270A1 and HIMARS rocket and missile launchers.

Program Status. The FY06-11 program funds procurement of ATACMS Unitary missiles and initiates a Service Life Extension Program (SLEP) for Block I and IA missiles that are approaching the end of their shelf life. An



ATACMS Penetrator (ATACMS-P) variant is being developed and demonstrated as part of a cooperative Army/Navy ACTD that will be completed in FY05 with three test firings and delivery of six residual missiles to

United States Forces, Korea (USFK). There is no follow-on program for ATACMS-P.

Chemical Energy Missiles—Javelin and TOW 2B

Description. The Javelin missile provides dismounted infantry with a medium-range, man-portable, shoulder-launched, fire-and-forget, anti-armor weapon system that provides a highly formidable capability able to defeat all known armor threats for the dismounted close fight. As a fire-and-forget missile with top and direct attack modes and 2.5 times the range, Javelin is a leap-ahead improvement over the Dragon system. Moreover, the Javelin's command launch unit incorporates an integrated day/night sight and greatly improves battlefield surveillance and survivability. Javelin has fire-and-forget

technology that allows the gunner to lock on to the target, fire the missile, and immediately take cover. Other features include a tandem warhead, an imaging IR seeker and a soft launch that allows the missile to be fired from enclosures. In addition to its high lethality, Javelin is ideally suited to rapid deployment due to its size, its high reliability, and its very small logistics tail. The Javelin has won high praise from commanders engaged in combat operations during OEF and OIF. For example, during the Apr 03 battle of Debecka Pass in northern Iraq, the Javelin missile played a decisive role in enabling an SF unit to destroy an attacking armor formation. Lessons learned from these operations are shaping the Javelin P3I program.

Program Status. Javelin FUE was Jun 96 with FRP beginning in May 97 and scheduled to continue through FY09. Javelin is currently being fielded to infantry, armor scouts, and combat engineer units. The Block I program includes improvements in the command launch unit for better target detection, recognition and identification, and extended surveillance time; the missile includes improved performance at maximum range, reduced flight time, reduced acquisition time and Counteractive Protective System interface. The Javelin weapon system is part of the FCS, dismounted with the ICV and integrated with the Armored Robotic Vehicle-Assault Light (ARV-A (L)) multifunctional utility/logistics and equipment (MULE), and provides risk mitigation paths for the ARV-A (6-ton vehicle). The Feb 04 joint requirements validation of the Stryker ORD included a revision to in-



tegrate the Javelin into the Stryker Remote Weapons Station (RWS) on the ICV variant of the Stryker vehicles.

Description. The TOW weapon system is a crew-portable, vehicle-mounted, heavy anti-armor weapon system designed to defeat armored vehicles and other targets such as field fortifications. The TOW weapon system provides the heavy anti-armor/assault capability for the Army's infantry forces (airborne, air assault, light, SBCT and Bradley-equipped mechanized) and the USMC forces with the TOW-equipped HMMWV, LAV and Cobra helicopters. The TOW family of missiles provides a man-in-the-loop, precision-point targeting capability, which serves to minimize collateral damage—a preeminent consideration in current and emerging operating environments. During OIF, the TOW missile fired from the Improved Target Acquisition System (with second generation FLIR), won accolades from the 101st Airborne Division (air assault) for the decisive role these systems played in enabling the division to employ precision fires to destroy enemy forces while also avoiding collateral damage. The modernized TOW 2B (Aero) missile provides even greater range and countermeasure defeat to TOW-equipped units and will mitigate TOW inventory risk. The TOW Bunker Buster missile (TOW BB) was fielded to the first SBCT in Nov 03 as an in-lieu-of mitigation item for the Stryker ATGM until the Stryker MGS is fielded.

Program Status. Procurement was 2,861 TOW 2B missiles from the projected requirement of 12,332 missiles funded in the FY06-11 program plan. The Army plans additional procurements in the FY06-11 program plan to maintain a minimum production line sustainment rate.

Guided MLRS (GMLRS) Rocket

Description. The MLRS M26 basic rocket is nearing the end of its shelf life and is now out-ranged by many enemy artillery and rocket systems. Guided MLRS is a major upgrade to the M26 series rocket that integrates a guidance and control (C&C) package and a new rocket motor to achieve greater range and precision accuracy. Launched from an M270A1 MLRS tracked or HIMARS wheeled launcher, GMLRS rockets are precision-guided munitions (GPS-aided Inertial Measurement Unit (IMU)) that enable a force to engage and destroy targets at ranges in excess of 60 km, with precision, and with fewer rockets, reducing the logistical resupply burden associated with unguided area munitions.



The Dual Purpose Improved Conventional Munition (DPICM) version of the GMLRS contains 404 submunitions (M77 grenades) to attack area targets. Fuze improvements, combined with the improved accuracy will also greatly reduce the hazard to operational maneuver and collateral damage from unexploded ordnance. A self-destruct fuze for the DPICM grenades is also being developed with European partners and will be incorporated into production. The GMLRS Unitary rocket variant will replace the DPICM submunitions payload with a unitary warhead that will have a multimode (point detonating, delay and proximity) fuze capability.

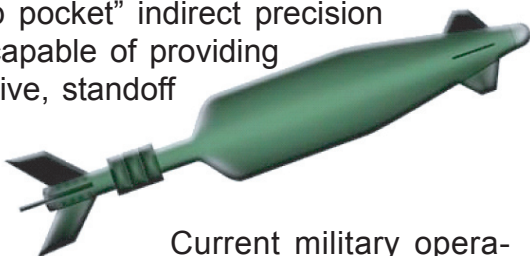
Typical threats to be engaged include self-propelled and towed artillery; multiple rocket launchers; forward-positioned, surface-to-

surface missiles or enemy air defense; a wide variety of active and passive, soft or lightly armored vehicles; and area or point targets with no collateral damage constraints. The GMLRS Unitary rocket will provide the ability to attack critical area and point targets in restricted terrain (under foliage, urban environments, and heavy snow) that may require reduced collateral damage effects.

Program Status. GMLRS DPICM development was an international program with the United Kingdom, Germany, France and Italy. GMLRS DPICM began LRIP in FY03 and will achieve IOC in 3QFY05. GMLRS Unitary is currently a U.S.-only effort in SDD. The GMLRS Unitary rocket development has been accelerated and will be developed and fielded using an evolutionary acquisition strategy and spiral development process to field a capability no later than the end of FY06. The evolutionary strategy approach will deliver a capability to the Soldier in increments, recognizing, up front, the need for or opportunity to integrate technologies that support future capability improvements.

120 mm XM395 Precision Guided Mortar Munition (PGMM)

Description. PGMM is a 120 mm laser-guided precision mortar munition, designed to defeat high-payoff targets with low collateral damage. It is the maneuver task force commander's "hip pocket" indirect precision effect, capable of providing responsive, standoff defeat of high-value targets.



Current military operations have underscored the immediate and significant need for an organic, responsive, indirect-fire, extended-range, precision-strike munition that has significant capability against

a variety of protected targets. Targets are threat infantry protected by field fortifications, masonry walls, or lightly armored vehicles. 120 mm mortars are key organic lethality platforms for the Current and Future Forces. PGMM is the key lethality system for the close fight.

Program Status. PGMM transitioned into the SDD phase in 1QFY04 with production scheduled to begin in FY08 and fielding in FY10.

Excalibur

Description. Excalibur is a cannon-delivered, precision-guided, extended-range family of 155 mm artillery projectiles that self-guide to a programmed aim point using GPS. Excalibur will deliver 10-meter circular error probable accuracy from minimum (8 km) to maximum (35-40 km) range in all weather conditions. Anti-jam technology and an inertial navigation system are used to provide precision-strike capability in a GPS-jamming environment. Target and fuze data are programmed into the projectile via an inductive projectile programmer Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS). Excalibur uses an optimized (near-vertical) terminal trajectory to engage targets in urban and complex terrain with minimal collateral damage. Excalibur will overcome the limitations of current area engagement munitions with precision, increased range, lethality and minimal collateral damage.

Program Status. Excalibur is in SDD and is a cooperative international development program with Sweden. The first spiral of Increment I will provide an initial capability to the JLW 155 Howitzers (M777E1) for the Stryker brigades in FY06. The second spiral of Increment I will provide an IOC to the M777E1 and NLOS-C in FY08. Future unitary variant

spirals will reduce costs, refresh technology and enhance performance capabilities to reflect evolving requirements.

Course Correcting Fuze (CCF)

Description. CCF and the Navy's Guidance Integrated Fuzing (GIF) program represent a cooperative effort to demonstrate, further develop and produce a fuze that will enhance the accuracy and effectiveness of DOD's conventional artillery munitions stockpiles. GIF/CCF will use GPS guidance and small canards to apply minor corrects to the ballistic trajectory of conventional artillery projectiles. The round will follow a normal ballistic trajectory, and the fuze will apply in-flight corrections to deliver the round to the target with much greater accuracy than current rounds. The program's intent is to deliver increased accuracy at a low cost. It will represent the middle of the spectrum of capabilities available for the commander, providing significantly increased accuracy over current artillery rounds, but not the degree of accuracy provided by precision munitions such as Excalibur.

Program Status. CCF RDTE begins in PB06 and the first delivery of CCF fuzes is expected in FY09-10.

Mid-Range Munition (MRM)

Description. MRM is an autonomous and laser-guided smart munition fired from an FCS Mounted Combat System Increment I vehicle. This munition extends the maneuver commander's battlespace BLOS to more than 12 km. MRM exploits the ability of the FCS-equipped UA to identify targets at greatly extended ranges, as well as pass digitized targeting information, in real time, to the maneuver commander or shooter. It also exploits autonomous and smart munitions technologies to provide a munition capable of

being fired from a platform at extended range BLOS targets. There are currently two MRM round concepts being pursued, MRM-KE and MRM-CE.

MRM-KE is an advanced guided, boosted, kinetic energy (KE) anti-armor smart munition capable of defeating current and advanced armored threat vehicles from close in to extended BLOS ranges. It utilizes a kinetic energy rod and rocket motor technology to thrust the round towards the target at a very high speed for defeat. An MMW autonomous seeker or SAL, along with radial maneuver thrusters, is used to acquire and guide the round towards the target with high accuracy. The projectile uses fins to aerodynamically induce spin and accelerometers to provide body motion data to ensure proper dynamics for seeker search area processing.

MRM-CE is an advanced, guided, chemical energy (CE) anti-armor smart munition capable of defeating current and advanced armored threat vehicles from fairly close in to extended BLOS ranges. It utilizes a dual tandem, chemical energy, shaped-charge warhead at relatively slow round impact speeds for target defeat. A dual-mode MMW, imaging infrared (IIR) autonomous seeker or SAL is used to acquire and guide towards the target with high accuracy. The sensors are mounted on a unique ball-joint gimbal to accomplish sensor imaging and large sensor search areas for target acquisition. The projectile uses canards and fins to stabilize the round and IMU technology to allow it to glide accurately towards the target during seeker search and terminal impact.

Program Status. The MRM program completed an ATD phase in Dec 03. A Milestone B decision was made in 4QFY04. The SDD phase will start FY05 with a Milestone C decision scheduled for FY09 and FRP in FY10.

Force Application Capabilities Summary

Stryker, FCS, HIMARS and the other materiel programs described in this appendix readily demonstrate the Army's modernization efforts to develop network-centric forces enabled by superior situational understanding and decision-making speed, capable of dominant maneuver and precision engagement (force application) as part of the joint team.

As the Army transforms to a Future Force design and capability, it will explore new and promising technologies that will provide enhanced force application capabilities. Inherent in this design is the requirement for all means of precision engagement to operate within a joint and combined system of systems and to be strategically responsive so that it remains an effective partner in the joint fight. This means that the Army must maximize commonality of organizations and equipment as well as fully leverage information technologies. Army transformation will meet these key requirements.

Appendix 2: Protection

Protection is the sum of all actions taken to prevent an adversary's effect on the Joint Force and the population that the Joint Force protects. These actions include protection of personnel, infrastructure and critical computer networks. Because WMDs pose a unique and catastrophic threat to personnel and infrastructure, special measures must be taken to deter and mitigate the effectiveness of an adversary's use of WMD. These measures include WMD counterproliferation, nonproliferation before an attack, active defense measures during an attack, and our ability to conduct effective consequence management following an attack using WMD.

Protection is accomplished through the planned and integrated application of several security-related and supporting operations and programs including law enforcement, physical security, protective services operations, critical infrastructure protection, information operations, crisis response, consequence management, intelligence and counterintelligence, intelligence fusion, counterterrorism and antiterrorism, and through air and missile defense (AMD) and chemical, biological, radiological, nuclear and high-yield explosive (CBRNE) defense measures.

The Army provides full-dimensional protection against enemy effects at the strategic, operational and tactical levels to the homeland, our allies and coalition partners, and the Joint Force. The protection of national or host nation assets and national centers of gravity is vital to the strategic level of operations from which national or combat power is generated.

The Army's priority of efforts in force protection remain focused on supporting operational forces and equipment deployed and in-transit; capitalizing on threat reporting and coordination with international/national intelligence and law enforcement agencies; enhancing detection and deterrence capabilities for CBRNE threats; institutionalizing installation access control for personnel and vehicles; improving policy and doctrine; strengthening training and exercises; and expanding force protection assessments.

The Army continues to ensure all mission essential systems are hardened to survive NBC effects, function in NBC environments, and are decontaminable. This will ensure that Current and Future Forces are prepared to operate in NBC environments.

Physical security programs continue to focus on ensuring the adequacy of policy and programs, physical security technology initiatives, access control, and civilian police and guard initiatives necessary to ensure the security of individuals and property in support of worldwide Army operations. The Army is continuing to assess its critical infrastructure to ensure adequate protection against potential threat actions.

This appendix provides a brief discussion of Army protection capabilities, specifically, Army AMD and CBRNE defense capabilities and key materiel programs associated with these capabilities. The importance of space-based capabilities and their role in force protection is also described.

Air and Missile Defense Capabilities

In the midst of AMD transformation efforts, AMD forces remain deployed worldwide in support of current U.S. efforts in the global war on terrorism and homeland defense. Patriot units are positioned in South Korea as a deterrence measure and sign of continuing U.S. commitment to that nation. Air and missile defense battalions are supporting operations in OIF. In addition, Air Defense and Airspace Management (ADAM) Cells are deployed with their parent SBCTs, with additional ADAM Cells slated to deploy in support of OIF 3. AMD units also contribute to the defense of the National Capitol Region. AMD weapon systems and integration platforms are viable enablers to the President and SECDEF's joint command and control network, which is crucial to homeland defense operations.

The U.S. AMD transformation plan is fully aligned with ongoing and future DOD, Army and joint transformation policy guidelines. AMD forces are designed to meet the challenges of the future operational environment,

the area-denial/anti-access strategies adversaries will employ, and the asymmetrical aerial capabilities they will use against joint and coalition forces. AMD forces are postured to fight as part of the joint team at strategic, operational, and tactical levels and possess the required capabilities to successfully execute all assigned warfighting missions. AMD's transformation fully supports Army modular force conversion in that it provides the combatant commander with scalable, modular and tailorable force packages that possess a joint and expeditionary mindset. This is accomplished via the joint AMD system-of-systems approach that will also contribute to the attainment of Defense Transformation Planning Guidance (TPG) operational goals. AMD transformation is consistent with and draws from Joint Operating Concepts, Joint Functional Concepts, and Joint Integrating Concepts.

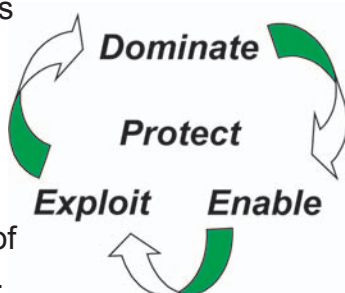
All of these factors combine to ensure that AMD transformation efforts in the DOTMLPF domains result in a strategically integrated, responsive, deployable, agile, versatile, lethal, survivable and sustainable force that is a critical enabler to the Future Force and an indispensable asset to the Joint Operating Concepts. En route to the desired end state, Army AMD will pull as many capabilities forward from the future as technology and resources will allow, enhancing the warfighting capabilities of the Current Force.

Role in the Army

The AMD mission states that AMD forces—fighting interdependently with other elements of the JIM team at strategic, operational and tactical levels—will provide AMD and contribute to situational awareness/understanding, airspace management, and operational force protection to deter or defeat enemy aerial threats, protect the force and high-value as-

sets, enable freedom to operate, and contribute to victory.

To accomplish this mission, transformed AMD forces must be able to dominate, enable, control and exploit the third dimension of the area of responsibility (AOR).



Dominate. Army AMD will help dominate the third dimension, interdependently with JIM forces, at strategic, operational and tactical levels, through joint attack operations; joint, layered active defense operations; joint passive defense measures; and integrated battle command. Modular, scalable, multifunctional Army AMD formations will be employed when and where required to deter and dissuade adversaries from using air and missile threats. Army AMD will help integrate and execute JIM offensive and defensive operations to deny enemy launch points and kill enemy air and missile threats on the ground before they can be launched. Mission-tailored AMD will also destroy enemy aerial RSTA beyond standoff, contributing to friendly force ability to see first by forcing the enemy to see last (or not at all). Army AMD will proactively kill in the air during midcourse and terminal phases of flight, at sufficiently long ranges to preclude warheads or target debris from harming friendly forces or assets.

Enable. Army AMD will help enable the third dimension and contribute to information superiority by integrating its sensor and battle command elements into the joint distributed network and providing continuous surveillance information that will support the Single Integrated Air Picture (SIAP) portion of a three-dimensional COP. These AMD sensors and battle command elements will provide

joint third-dimension situational awareness and understanding; provide Army linkage to the joint identification/engagement authorities; facilitate planning, coordination and synchronization of airspace activities and linkage to the Joint Airspace Control Authority (ACA); help enable trajectory clearance for ground-to-ground, ground-to-air and air-to-ground fires; and protect friendly aerial objects.

Control. Control is exercising, regulating, and governing the Army use of airspace in close coordination with the joint airspace control authority. Control assures discrimination of all airspace objects, virtually eliminating the risk of fratricide; enhances force protection for air and ground forces; and increases the overall effectiveness of the force.

Exploit. By dominating and enabling in the airspace, joint and coalition forces can better exploit it for their exclusive operational benefit. AMD and joint forces will exploit the third dimension by using it to conduct inter- and intra-theater operational maneuver from strategic distances and to sustain noncontiguous forces via air. Modular, multifunctional AMD task forces will be deployable on C-130/Future Force airlift and will help enable the force to project and sustain in an anti-access environment by protecting critical bases of operation and protecting joint vertical entry forces. Army AMD ground and elevated sensors will provide extended range surveillance of aerial and ground targets that can be exploited to support offensive and defensive NLOS engagements. Army AMD elevated sensors will be multifunctional platforms providing long-endurance communications relays to distribute actionable information to enable commanders to effectively integrate, coordinate and synchronize warfighting operations with dispersed forces on the nonlinear battlefield. Army AMD and joint forces will leverage space and aerial ISR capabilities to support

joint attack operations and provide early warning of air and missile attack to at-risk forces and civilian populations.

System of Systems (SoS)

Integrated AMD capabilities are crucial elements supporting our National Security Strategy. Capability integration will reflect an understanding that solutions or systems operating in each of the domains have strengths and weaknesses. The joint force commander will arrange and employ capabilities in mutually beneficial ways to capitalize on strengths and offset weaknesses.

Global considerations will influence operational focus against threats that can rapidly deliver WMD against the homeland and outside the AOR. This will require offensive/defensive capability integration and operations within and among Joint Force commands. Active AMD will provide a layered defense with multiple engagement opportunities against threats.

The regional fight may be constrained by limited assets due to strategic imperatives, short warning times for deployment, limited lift, and immature AORs. The Joint Force will mitigate these challenges through offensive/defensive JIM integration through AMD integration platforms.

Joint, integrated AMD is a critical warfighting requirement that protects our homeland, deployed forces, friends and allies. This capability is achieved through an effective SoS application and synergy consisting of sensors, shooters, and battle management command, control, communication, computers and intelligence (BMC4I). The Army AMD SoS is designed to offset the problems related to Service-specific or stovepiped systems—limited interoperability or joint functionality, limited capability to maximize engagements out to

kinematic ranges, lack of a fused air picture, no persistent wide-area detection capability and limited engagement battlespace—due to the range and terrain limitations of single systems.

The Army AMD SoS program is synchronized with other Services and in many aspects is leading the way to develop a Joint Force AMD SoS to counter ballistic missiles, CMs, unmanned aerial vehicles, tactical air-to-surface missiles, rockets, artillery and mortars, and rotary/fixed-wing aircraft threats. To better maximize the SoS approach, Army AMD is changing the way it organizes and fights with the development of composite AMD units that are modular and multifunctional. The benefits of this dual transformation are significant: offsets the limitations of a single system, significantly increases the effectiveness of the area air defense commander's defense design, enhances modular or task force operations, reduces the limitations created by autonomous operations, reduces fratricide and increases the engagement battlespace against all AMD threats.

AMD Organizational Transformation

The first phase of the organizational transformation effort is based on expanding joint and Army future concepts; Future Force attributes and characteristics; changes in technology; AMD lessons learned from OIF and other operations, wargames, and experiments; and current joint and Army AMD capability gaps analyses.

AMD organizations will be structured to meet National Military Strategy (NMS) needs and support future joint and Army formations in garrison and war. The AMD organizational vision is fully embedded with the modular Army Future Force vision. All forces are considered “pooled” and available to support any future

JIM headquarters with mission-tailored packages. Army AMD transformation will optimize the synergy between the AC and RC forces in order to meet the requirements inherent in homeland security, strategic deterrence, stability operations, and major combat operations Joint Operating Concepts.

Unit transformation begins with the battalions but stretches across all AMD echelons. Composite AMD units (combat formations that possess the full spectrum of AMD combat potential) will be created. Initially consisting of Patriot and Avenger batteries, they will evolve into a Surface-Launched Advanced and Medium Range Air-to-Air Missile (SLAMRAAM) and Medium Extended Air Defense System (MEADS) combination. AMD batteries or battery teams will be the primary battle elements to achieve effects on the battlefield at maneuver UA, UEx and strategic levels. They can rapidly deploy, achieve one or more required lethal effects without augmentation, and sustain unit operations. They can fight independently but generally will serve as subordinate multifunctional AMD task force elements. All AMD combat units will be pooled at the UEy level under AMD brigades for rapid integration into UEy or UEx formations, in support of BCTs, as the operational/threat environment requires.

The AAMDC is the senior Army AMD battle command headquarters at the UEy level and commands AMD forces (brigades) assigned to operate at that level. It has, in concert with the Joint Force's Area Air Defense Commander, overall mission responsibility for the planning, integration and execution of Army air and missile defense operations. AAMDCs are regionally focused headquarters. The two AC AAMDCs conduct frequent, short-notice deployments in support of USPACOM and USCENTCOM. The RC AAMDC is focused

on the defense of the CONUS and the other geographic combatant commanders' AORs. The Terminal High Altitude Area Defense (THAAD) and Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) systems, along with their supporting command and maintenance units, are envisioned to be assigned to regionally focused AMD brigades.

Army AMD transformation is aligned with the Defense Strategy, recommendations from the *2001 Quadrennial Defense Report* and supports attainment of DOD's critical operational goals, the *Army Transformation Roadmap*, *Joint Vision 2020*, *JTAMD 2010 Operational Concept* and the Protection Joint Functional Concept. Army AMD transformation supports joint interdependence by reducing focus on areas well covered by the Joint Force (such as defeating the fixed-wing threat) and by providing the Joint Force its only current capability against short-range ballistic missiles and the first integrated capability against advanced CMs. Over 85 percent of Army AMD's investment strategy is dedicated toward filling critical Joint Force capability gaps.

The critical components of the capabilities essential to the Joint Force include the Combined Aggregate Program (PAC-3/MEADS), THAAD, JLENS, SLAMRAAM and Integrated Fire Control (IFC).

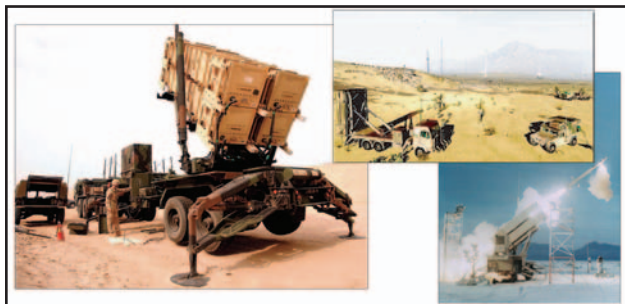
As a result of changes in the future operational environment, our Army is pursuing the most comprehensive force transformation in the past century as part of the joint effort to transform America's military to protect our national security interests. Army AMD continues to be an essential element of Joint Force operations and provides the right capabilities for joint and Army Future Force success.

Discussion of Key AMD Materiel Programs

Army modernization for AMD provides key components and capabilities of the joint AMD SoS.

Shooters. Aerial threats have diverse profiles and target characteristics that impact active defense weapon systems design and development. Army modernization is on schedule to provide systems capable of defeating a wide range of the aerial threats from advanced CMs up through tactical ballistic missiles. Joint interdependence—Patriot and THAAD provide the only capability against tactical ballistic missiles (TBMs). Additionally, Army AMD will provide the first integrated advanced CM capability with the development of SLAMRAAM.

PAC-3/MEADS Combined Aggregate Program (CAP)



Description. With the approval of the Defense Acquisition Executive (DAE), the Army has combined the management, development and fielding of the Patriot and MEADS programs. The PAC-3/MEADS CAP is based on the concept that the MEADS objective capability will be achieved through an evolutionary approach by incrementally inserting MEADS major end items (MEIs) into the current Patriot system, thereby providing increased capability to the field in a timelier manner. This approach allows for earlier modernization and fielding of enhanced capabilities to the

currently fielded Patriot forces in conjunction with recapitalization efforts. Also, the evolutionary development and fielding of MEADS provides linkage to the Army's fully networked battle command capabilities bridge from the Current to Future Force, enables interdependent network-centric warfare, facilitates FCS interoperability, and fully supports the Joint Operating Concepts. Finally, the CAP ensures that required AMD capabilities are fielded to achieve the protection joint functional concept construct: detect, assess, warn, defend and recover.

Within the Current Force, Patriot is a corps/theater AMD system that can simultaneously engage and destroy multiple air and missile threats at varying ranges and altitudes. It is the world's only battle-proven theater AMD system and will be a key AMD element for the next 20 years. The Patriot system will provide the foundation for Army AMD transformational efforts, and will be the core of initial AMD composite units, comprised of Patriot and Avenger batteries. In the future, as MEADS MEIs are incrementally fielded to Patriot units, these composite AMD units will consist of MEADS and SLAMRAAM batteries. This construct will provide combatant commanders with modular, scalable, mission-tailored capabilities to dominate, enable and exploit the third-dimension battlespace and contribute to operational force protection in support of UA, UE, and joint force commanders in the future operational environment.

Currently, only eight of 10 AC Patriot battalions are funded for upgrades to PAC-3, allowing for a mixed force of battalions with significantly different capabilities. PAC-3 provides a remote-launch capability, which significantly extends the defended area; increases range, altitude, and firepower with new hit-to-kill missile and ground support equipment; and engages multiple TBMs,

Major End Items	Objective Quantity	LRIP Quantity	Initial Production
BMC4I TOC	180	8	FY08
Launcher	310	12	FY10
Reloader	153	6	FY10
MSE	1,528	148	FY10
Surveillance Radar	87	17	FY13
Fire Control Radar	156	28	FY13

air-breathing threats (ABT) and CM threats. Patriot recapitalization is ongoing to improve the operational capability by bringing existing Patriot assets to a “like-new” (zero-miles/-hours) state, thereby achieving OSD’s Setting the Force objectives and enabling the Army to meet future combatant commander requirements. PAC-3 system upgrades are planned to counter evolving threats, improve joint interoperability, and increase surveillance and detection capabilities required as part of evolutionary development. Further, to support current operations, congressional committees have resourced nine capability upgrades that will be fielded to Patriot units in FY05-07 to correct deficiencies identified in OIF lessons learned. These Patriot OIF fixes include upgrades in air-to-ground communications, software improvements in training scenarios to address spurious tracks and track correlation, software upgrades that improve classification, identification, friend or foe (IFF) enhancements, Link-16 joint range extension, embedded data recorder replacement, radar shroud monitor, battery command post (BCP) acceleration, and upgrades to AMD training centers.

MEADS will provide joint and coalition forces critical asset and defended area protection against multiple and simultaneous attacks by TBMs, CMs and other ABTs. MEADS will have a netted and distributed architecture with modular components to increase survivability and flexibility of employment in a

number of operational configurations. The objective MEADS battery will be scalable and tailorable to operational requirements. It will consist of a BMC4I tactical operations center (TOC) that is capable of integrating into Army and joint SoS BMC4I architectures, enabling distributed system operations and BLOS engagements, for maximum protection of supported forces by engaging at longer ranges; a lightweight launcher capable of transporting and launching up to eight missiles; a reloader; the PAC-3 missile; an ultra-high frequency (UHF) surveillance radar (SR) that provides 360-degree coverage and near-range to long-range detection of low-radar, cross-section targets; and two X-band Multifunction Fire Control Radars (MFCR) that provide 360-degree coverage and are designed for high-precision handover to the in-flight missile, discrimination capabilities, and short-range target detection and horizon search.

In addition, MEADS will provide significant improvements in strategic deployability, transportability, mobility and maneuverability. Its substantially reduced lift requirements enable MEADS to be deployed rapidly with essential combat loads via inter-/intra-theater land, sea and airlift anywhere in the world. MEADS will provide combatant commanders with an AMD system that is fully transportable by C-130 aircraft, thus increasing strategic and tactical mobility. Further, its decreased size and weight and ability to conduct rapid march order and system emplacement will enhance

maneuverability, thereby providing better AMD protection to maneuvering forces.

While the PAC-3 missile is the baseline missile for MEADS, the Missile Segment Enhancement (MSE) missile is being developed to meet U.S. operational requirements. MSE will provide a more agile and lethal interceptor that increases the engagement envelope while enhancing insensitive munitions compliance. MSE will significantly contribute to increasing MEADS capability to “defend” as part of the Protection Joint Functional Concept construct.

The CAP increments will improve the current Patriot capability to protect forces during the transformation to MEADS. MEADS MEIs will be developed and fielded in three acquisition increments that comply with and are in support of Air Space and Missile Defense (ASMD) and joint SoS capabilities:

CAP Acquisition Increment 1 (FY09). The Increment 1 architecture integrates the initial MEADS BMC4I capability into the Patriot force. The BMC4I TOC will be C-130 deployable and will provide for an initial common BMC4I for both the PAC-3/MEADS CAP and the SLAMRAAM, which enables BLOS engagements with SLAMRAAM using JLENS or Patriot fire control data.

CAP Acquisition Increment 2 (FY11). The Increment 2 architecture includes the MSE missile in a single-canister configuration, the MEADS near-vertical launcher with reloader, and an associated BMC4I software update to support fire control of the new missile. All three of these components, when integrated into the SoS architecture with JLENS (elevated sensor), will significantly increase the defended area by enabling engage-on-remote (EOR) capability against incoming threats. EOR capability will enable units to take ad-

vantage of the significant improvements of the MSE missile, providing increased protection to tactical formations and defended assets.

CAP Acquisition Increment 3 (FY15). The Increment 3 architecture will begin integrating the objective MEADS configuration. An updated BMC4I will include a communications backbone and software functionality to enable rapid transition of elements within the architecture to support tactical mobility requirements. Also, Increment 3 integrates the new SR and two MFCRs into the fire unit/battery. The associated surveillance, fire control, classification discrimination and identification (CDI) and battle management functionality will offset current operational shortfalls/capability gaps in the areas of sectorized systems, stressing threats, strategic and tactical mobility and combat identification (CID). Enhancements in CID will significantly contribute to fratricide prevention by incorporating the capability to noncooperatively classify targets by type and specific platform, thereby contributing to the identification of unknown targets that may have nonfunctional IFF transponders.

Program Status. The Army’s plan for the combined management, development and fielding of the Patriot and MEADS programs was approved by the DAE at the Defense Acquisition Board (DAB) on 07 Apr 03. On 01 Jul 04, the DAB approved Milestone B for all three CAP increments, with a FUE date in 2015 (battery-level). The Milestone B decision approved the program’s entry into SDD and the following LRIP quantities.

Terminal High Altitude Area Defense (THAAD)

Description. THAAD is a ground-based missile defense system being developed to protect forward-deployed military forces, population centers and civilian assets from

short- and medium-range ballistic missiles. As an element of the Missile Defense Agency's (MDA) terminal defense segment, THAAD will provide the opportunity to engage ballistic missiles—outside or inside the earth's atmosphere—that were not destroyed earlier in the boost phase or midcourse phases of flight by other Ballistic Missile Defense System (BMDS) elements, such as Aegis.

A THAAD unit consists of a command and control/battle management component, truck-mounted launchers, interceptors, an X-band radar and ground support equipment. The THAAD interceptor is comprised of a single-stage booster and a kinetic kill vehicle, which destroys enemy warheads through hit-to-kill collisions. The THAAD radar is a solid-state, phased-array, X-band radar that performs search, track, discrimination and other fire control functions. The THAAD radar also sends updated target information to the kill vehicle while in flight.



Program Status. MDA is developing THAAD in incremental, capabilities-based blocks. Flight tests scheduled to begin in FY05 are part of an extensive T&E program that will demonstrate the capability of the ongoing research and development activities. The THAAD acquisition strategy will rely on test program results to gain knowledge and will use that knowledge to make future acquisition and Army transition decisions. The first THAAD fire unit will be fielded in FY09. THAAD will have an emergency activation surveillance capability with Army Soldiers in

FY05 and an engagement capability in FY07. The first THAAD battery (-) will begin fielding in FY09 with a second in FY11.

Surface-Launched Advanced Medium-Range Air-to-Air Missile (SLAMRAAM)



Description. SLAMRAAM will defend designated critical assets and maneuver forces against aerial threats. It will replace the Avenger in the Army's AMD force and is being developed in concert with the USMC's CLAWS system. SLAMRAAM is a lightweight, day-or-night, adverse-weather, NLOS system for countering CMs, UAVs, RSTA platforms, and rotary and fixed-wing threats with engagement capabilities up to 30 km. The system consists of SLAMRAAM components—a HMMWV-mounted launcher platform; launch rails; launcher electronics; onboard C4 components; and AIM-120 Advanced Medium-Range Air-to-Air Missiles (AMRAAMs), supported by the Sentinel Enhanced Target Range Acquisition Classification (ETRAC) sensor, which is linkable to other joint and Army external sensors.

Program Status. The SLAMRAAM entered the SDD phase in Sep 03. It is funded for development and fielding of one battery in FY06 and one battalion in FY08.

Ground-Based Midcourse Defense (GMD)



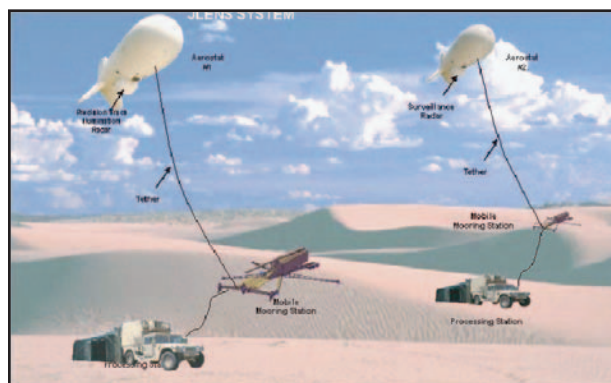
Description. GMD is a fixed, land-based system designed to provide limited protection to the United States against an intercontinental ballistic missile (ICBM) attack. The GMD design focuses on ensuring high defense effectiveness against ballistic missile attacks of limited scope (e.g., accidental, unauthorized, or authorized limited launch). The GMD SoS architecture consists of the following components: GMD Communications Network (GCN), GMD Fire Control (GFC), Missile In-Flight Communications, and Ground-Based Interceptors (GBI). GMD is part of a SoS architecture that includes Upgraded Early Warning Radars (UEWR), X-Band Radars (XBR), Aegis and the Space-Based Infrared System (SBIRS).

Program Status. GMD is an element of the MDA's broader Ballistic Missile Defense System (BMDS), a capabilities-based developmental acquisition program utilizing a block approach. The Army has served as lead Service for GMD (less acquisition) since 1999, and today has focused its efforts on providing installation support, facilities, resources, force protection and operational personnel in support of the deployment of a capability for

limited defensive operations in 2004 with an additional mission as a developmental test bed. The Strategic Planning Guidance directs the MDA to develop options for expanding GMD beyond the test bed.

Sensors: Elevated and ground-based sensors provide effective detection of all aerial threats and work with Future Force capabilities to provide enduring, persistent surveillance and third-dimensional situational awareness. The Army has two sensor programs in JLENS and Sentinel that are key components of the joint integrated AMD architecture. Shooter sensors (Patriot, MEADS and THAAD) also feed into the joint, fused, integrated third-dimensional network. Joint interdependence—JLENS provides the only long-endurance, elevated sensor capable of providing fire control quality data throughout the joint network.

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)



Description. JLENS is an Army-led, joint program employed with a theater or UE organization. JLENS is an elevated, long endurance system that uses advanced sensor and networking technologies to provide 360-degree Wide Area Surveillance Radar and Precision Track Illumination Radar (PTIR) against the land attack cruise missiles (LACMS) threat and can also serve as a long-endurance communications relay. JLENS enables joint and

Army AMD SoS to conduct BLOS and NLOS engagements against aerial targets out to each respective interceptor's maximum effective kinematic range and to enable engagements in clutter. JLENS provides detection and tracking of fixed- and rotary-wing aircraft, UAVs, TBMs in boost phase, and surface moving objects when performing a selective moving target indicator (SMTI) mission. JLENS directly supports all facets of joint theater AMD (JTAMD) active air defense and contributes to offensive counter air (OCA)/attack operations and C4I through multi-link dynamic data distribution. JLENS supports JTAMD mission set execution by providing surveillance and supporting integrated fire control (IFC), and aerial CID activities. JLENS is a major contributor to the JTAMD Capstone Requirements Document (CRD) objectives of SIAP and CID, providing precision tracking and measurement information. As a key element of the SIAP, JLENS integrates data from multiple sensors and C3I networks and provides correlated data to BMC4I nodes. JLENS is less expensive to buy and operate than fixed-wing aircraft and can stay aloft for up to 30 days, providing 24-hour battlespace coverage over extended areas.

In Dec 02, the VCSA tasked Army material developers, in coordination with the REF, to determine what material solutions could be made rapidly available to improve force protection for Soldiers in Afghanistan and elsewhere. In response to the VCSA initiative, the JLENS project office proposed, developed and deployed three force protection packages known as JLENS Rapid Aerostat Initial Deployment (RAID) to Afghanistan in support of OEF in Mar 03 for \$6.1 million. These elevated, multispectral sensor systems were fully operational by early Apr 03.

The JLENS RAID system consists of three main components:

Platform. AB-1309, 117-foot tower or 15-meter aerostat (work is being conducted for an airship platform).

Sensor. Provides 24/7, 360-degree visual coverage with an electro-optic (EO) color daytime camera, an infrared black/white day or night camera, and a laser range finder with pointing azimuth indicator for precisely locating targets of interest out to 13 km (personnel) or 20 km (vehicles), allowing the commander in the field to respond in a timely, safe and appropriate manner.

Ground Control Station. For sensor display and control with video recording/playback capability EO/IR fully passive sensor system, color EO daytime and black/white IR day or night capability with laser range finder, and pointing azimuth indicator.

Program Status. JLENS is a key component of the Army's cruise missile defense (CMD) acceleration initiative, developed as a joint solution in an SoS framework, to provide combatant commanders with an increased CMD contingency capability by FY08, with FUE in FY10. JLENS is being developed, demonstrated and procured using an evolutionary acquisition strategy consisting of spirals and increments. Each increment is traceable to the ORD block requirements (e.g., Increment 1 is equivalent to ORD Block I). Increment 1 consists of two spirals; each spiral is being constructed to support air directed surface-to-air missile (ADSAM) engagements, SIAP and CID capabilities. Increment 2 will provide an increased fire control radar capability and a wide area surveillance capability with each sensor hosted on a nontethered platform. Increment 3 provides an increased system capability with sensors hosted on a nontethered, single platform for high mobility. A Milestone B decision is scheduled for

FY05, and a Milestone C decision is expected in FY09.

Due to the success of the RAID effort, funding in the amount of \$38.3 million for 18 additional units was part of the \$87 billion FY04 supplemental spending bill passed by Congress for support of OEF, OIF and Noble Eagle.

Sentinel



Description. Sentinel is a trailer-mounted radar system that detects, tracks, classifies and identifies CMs, UAVS, helicopters and fixed-wing aircraft to cue short-range air defense weapons. Sentinel is a key part of Army modular force conversion providing airspace management and third dimensional capabilities to the Army's UExs. It is employed in the division and corps areas and is C-130 deployable. Data is passed through the Forward Area Air Defense Command and Control (FAAD C2) to short-range air defense weapons. The Sentinel is comprised of a radar-based sensor system with its HMMWV prime mover, power, IFF, and command and control interfaces. The antenna/transceiver group has an advanced three-dimensional battlefield air defense radar housed aboard a light tactical trailer (LTT) chassis. The radar employs a modern phased array antenna that automatically detects, tracks, classifies,

identifies and reports targets. Targets can be hovering or fast moving, from nap of the earth to the maximum engagement altitude of short-range weapons. The radar operates in the X-band, transmitting 1,100 pencil beams per rotation. It rotates at 30 rpm (two-second update). The instrumented range and altitude are 40 km and 4 km, respectively. The Sentinel data utilizes SINCGARS AN/VRC-92A and EPLRS AN/VSQ-2 radios. These can provide a track file of more than 60 targets. Sentinels will be in the composite battalions, providing 360-degree surveillance to counter CMs, UAVs other ABT threats, enabling Avenger today and SLAMRAAM in the future to defeat those threats.

Program Status. The program completed its primary Sentinel procurement in FY01 and is currently undergoing preplanned product improvement (P3I) to improve surveillance and tracking capabilities. Sentinel completed fielding to Active Army and National Guard units in FY03. Additional upgrades and system modifications are currently scheduled through FY08 for many AC and RC units to take advantages of advances in technology and software upgrades. ETRAC modifications will be applied to 20 radars by FY05. The ETRAC modifications consist of two upgrades: Phase 1A improves the radar detection range against low-observable and stealthy targets; Phase 1B improves the radar classification of low-observable and stealthy targets at extended ranges. The Phase 1B capability for target airframe classification will support the joint identification and target classification function that allows short-range weapons to operate at maximum effectiveness.

BMC4I. Integrated BMC4I provides the AMD SoS backbone. Without the ability to provide fused, near real-time information with fire control quality data, Army AMD SoS will not

be able to provide such key AMD capabilities as BLOS or wide area engagements. There are no BMC4I systems that can provide fire control quality data throughout the SoS. Development of a SIAP or integrated fire control capability evolution may eventually provide a single BMC4I solution among the Services and the Joint Force, but that capability has not yet been developed, planned or programmed.

Air Defense and Airspace Management (ADAM) Cell

Description. The ADAM Cell consists of six air defenders and aviators and is organic to the BCT and SBCT HHC. The ADAM Cell is equipped with an Air and Missile Defense Work Station (AMDWS), an Air Defense System Integrator (ADSI), Tactical Airspace Integration System (TAIS) Airspace Workstation (AWS) and Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) processor. The mission of the ADAM Cell is to conduct continuous AMD planning and coordination and maintain aerial situational awareness proportionate with the service sensors deployed within the brigade area of operations (AO). The ADAM Cell also provides the commander and staff with the aerial component of the overall COP. As the operation evolves, the ADAM Cell works continuously with the staff to ensure the commander's intent, with respect to aerial situational awareness and defenses, is executed. The ADAM Cell continuously monitors the AMD situation and conducts METT-TC analysis to achieve situational understanding of friendly and enemy third dimensions.

Program Status. ADAM Cells are fielded to SBCTs serving in Iraq and are scheduled to be fielded to BCTs and select divisional headquarters deploying to Iraq. Currently, modular force conversion requirements are seven per

UEX. Within the UEX, ADAM Cells are located in Tactical Command Posts One and Two—one per each of the four BCTs and one in the fires brigade. Consideration is being given to ADAM Cells for each modular aviation, maneuver enhanced (ME) and RSTA brigade. To date, 34 of the currently required 127 ADAM Cells have been resourced through FY10. Another 32 have been identified as part of the FY05 supplemental reprogramming action. Seven have been fielded, and five additional ones will be fielded by Dec 04.

Joint Tactical Ground Station (JTACS) Multi-Mission Mobile Processor (M3P)



Description. The Multi-Mission Mobile Processor (M3P) is a P3I of the current, operationally proven JTACS system. JTACS M3P is being acquired as part of the mobile ground segment for the Space-Based Infrared System (SBIRS), the successor to the Defense Support Program (DSP). JTACS M3P is a transportable missile warning and communications system that receives and processes direct downlink raw data from DSP and SBIRS sensors. The capability supports simultaneous operations in multiple theaters and provides the theater combatant commander with organic in-theater tactical ballistic missile threat warning. In addition, the JTACS M3P with the SBIRS sensors will

provide battlespace characterization data for situational awareness. JTAGS M3P will interface with DCGS-A to provide warning and situational awareness data down to the tactical command level. The JTAGS M3P data processor and communications equipment are contained in a 42-foot van and includes two 100-kW generators, three 5-ton cargo trucks, one 5-ton tractor, three tri-band antennas and one HMMWV. The JTAGS program has incorporated a block acquisition approach to upgrade the M3P configuration and meet objective performance requirements. This approach secures an evolving and increasing capability to access the similarly evolving data provided by DSP sensors as the SBIRS constellation replaces the aging DSP inventory. Block 1 maintains supportability and DSP compatibility by upgrading the JTAGS to the M3P configuration.

Program Status. The Army will replace the five fielded DSP-compatible M3P systems, of which three sections are permanently forward deployed, beginning in 1QFY06. The Army-approved requirement calls for a JTAGS M3P force of three full detachments (six sections total). The sixth section is currently not funded. The transition to Block 2 will occur as the SBIRS High Earth Orbit (HEO) and Geosynchronous (GEO) satellites are launched and assume operational capability. With the SBIRS program replanning underway, Block 2 implementation has not been approved. However, application of the upgrades to the Army M3P systems is projected to begin in FY11. M3P Block 3 is planned to incorporate data from the technologies developed by the MDA and their development efforts with the Space Tracking and Surveillance System (formally SBIRS Low). MDA is conducting technology demonstrations that will lead to a Low Earth Orbit (LEO) constellation that will support the Ballistic Missile Defense System and strategic and tactical missile warning.

Air and Missile Defense Command and Control System (AMDCCS)



Description. The AMDCCS provides both command and control and a sensor-to-shooter link for Army AMD operations and is the current backbone for Army AMD command and control systems. It consists of two components: FAAD C2 and the Air and Missile Defense Planning and Control System (AMDPCS). AMDCCS automates C4 and ISR digital linkages; integrates AMD sensors, weapons and C3I systems; and interfaces with the Army Battle Command System (ABCS), Global Command and Control System (GCCS), and joint and allied battle management systems. It provides selected AMD elements a fire control system via the ADSI for monitoring and controlling engagement operations by subordinate battalions. AMDCCS provides a common AMD staff planning and battlespace situational awareness tool via the Air and Missile Defense Workstation (AMDWS), which presents airspace situational understanding to Army commands. AMDWS also enables Army interoperability with joint theater AMD forces. AMDPCS is the foundation for the ADAM Cell, a critical component of the maneuver commander's ability to execute effective Army airspace command and control (A2C2).

Program Status. FAAD C2 is an Acquisition Category (ACAT) II program in procurement with an Aug 95 approved ORD. AMDPCS is an ACAT III program with a May 97 approved ORD currently under revision. The FY06-11 program plan funds both FAAD C2 and AMDPCS to provide AMDCCS to all SBCTs, selected AC and RC modularly configured BCTs, and UEx headquarters and ARNG Avenger battalions.

AMD Summary

AMD Future Force organizations and systems reflect the culmination of ongoing system improvements, new system capabilities and state-of-the-art technologies. They will be modular, highly mobile, tailorable and interoperable with Army, joint and multinational forces and interagency team members. They will be fully capable of proactively protecting joint forces, providing aerial situational awareness, and contributing to airspace management across the range of military operations. Future Force AMD systems development and subsequent resourcing challenges the Army to pursue and analyze technologies that support valid operational concepts and doctrine. This ongoing analysis will ensure the Army funds effective DOTMLPF solutions that optimize capabilities for the Future Force.

Space Capabilities Enabling Force Protection

In addition to AMD and CBRNE capabilities supporting force protection, military dependence on such space force enhancement capabilities as position, velocity, navigation, timing services, ISR, communications and weather, terrain, and environmental monitoring (WETM) data continues to grow. Space control is an evolving facet of force protection that helps assure access to these capabilities while denying adversaries the same, thus

facilitating freedom of action for maneuver forces and space assets. It involves four interrelated objectives:

- Surveillance of space assets to understand their mission and operations as well as threat characterization and rules of engagement (ROE) validation
- Protection (defensive or offensive) of space systems from hostile actions
- Prevention (active or passive) of unauthorized access to and exploitation of space systems
- Negation (deny, disrupt, deceive, degrade or destroy ground or space assets or communications links between them) of hostile space systems that place the combatant commander's interests at risk

Our ever-increasing reliance on space, combined with the advantages an adversary can garner from both foreign government and commercial space capabilities, makes space control a long-term operational priority.

The Army contributes to the nation's space control capability through use of the ground-based space surveillance systems on Kwajalein Atoll. When not committed to Ballistic Missile Defense research and development, these radars help the U.S. Strategic Command identify and characterize potential adversary space capabilities. Tactical surveillance capabilities are also being developed to enhance support to ground maneuver forces. Additionally, the Army is currently using Big Crow, operated by the Army Space and Missile Defense Command (SMDC)/Army Strategic Forces (ARSTRAT) Space Electronic Warfare Detachment (SEWD), as a space control asset to support current operations. Big Crow is a multifaceted electronic warfare (EW) test bed capability that assesses and

stresses space control systems in development that also has operational applications. The Army is conducting S&T and RDTE efforts, developing doctrinal, organizational and operational concepts; and planning an acquisition strategy to bring new space control capabilities to the warfighter. The Army is also partnering with sister Services to pursue terrestrial-based space control solutions for direct Army and Joint Force support.

CBRN Defense Capabilities

The Army's dedicated chemical, biological, radiological and nuclear (CBRN) defense units; corps of trained defense experts; and enhanced NBC medical treatment capabilities, significantly mitigate the effects of threat CBRN weapon employment. The Army's concept to employ "focused defense" against CBRN weapons enables units to operate at the lowest required protective posture without increasing risk to the Soldier. CBRN reconnaissance and surveillance units, with their point and standoff detectors and battle management/C2 procedures, are the principal means of contamination avoidance. This protection extends throughout the full spectrum to include homeland defense. The Army is augmenting installation commanders with the ability to respond to terrorist and CBRN attacks through dedicated force structure and training.

The Army activated the 20th Support Command (CBRNE) in Oct 04. This headquarters is a "one-stop shop" for CBRNE matters. They will integrate, coordinate, deploy and provide trained and ready forces to respond to CBRNE incidents both at home and abroad. They will command and control both explosive ordnance disposal and technical escort units.

CBRN defense systems, obscurants and their enabling technologies allow the Army to fully achieve force protection, information dominance and full-dimensional protection in a WMD environment. The Army's CBRN defense strategy is to employ a focused defense against CBRN threats so that only units directly affected by the hazard would be warned to take protective measures. Using focused defense, large numbers of units will no longer assume a full protective posture as a precautionary measure. Focused defense allows units to operate in the lowest required protective posture without unacceptably increasing the risk to Soldiers. The Army's obscuration strategy is to deny the threat's use of the electromagnetic spectrum while preserving our ability to exploit it at will.

In addition to providing the means of general CBRN defense and obscuration common to all units, the Army provides increased CBRN defense and obscuration capability with specialized chemical units. CBRN reconnaissance and surveillance units, with their point and standoff detectors, are the principal means of contamination avoidance. Decontamination units restore combat power after resources (personnel, equipment and facilities) are contaminated. Biological detection units provide capabilities to shorten response time to initiate their medical response to the growing threat of biological warfare (BW) agents. Information dominance is supported through development and employment of obscurants that are effective in the visual, infrared and millimeter ranges.

The CBRN defense mission area also includes the Army's efforts to address homeland security. Today, the nation recognizes that CONUS installations and power projection platforms are no longer a sanctuary. The very ability to execute our force projection strategy requires CBRN-focused defense over strate-

gic forces and the means to employ them from premobilization through conflict termination and demobilization.

Chemical Vision 2010 is the implementing vision of the Army's CBRN defense modernization effort. It enables the commander to minimize casualties and preserve combat power in a CBRN environment and to create information superiority by using obscurants. Operationally, if the enemy has an offensive CBRN capability, our primary goal is to deter threat use. If deterrence fails, our mission is to defend against a CBRN attack with minimal casualties and degradation, allowing commanders to quickly restore full combat power and continue their mission across the full spectrum of operating environments.

The principles of CBRN defense in *Chemical Vision* are sense, shape, shield and sustain. The principles of obscuration are sense, shape, shield, attack and deceive. These principles support the patterns of operations in *Army Vision 2010* (protect the force and information dominance) and the principles in *Joint Vision 2020* (full-dimensional protection and information operations).

In providing the CBRN defense and obscuration systems for the Army's transformation strategy, the Army will equip its specialized chemical units and provide CBRN defense and obscuration items common to all units in accordance with the three tenets of the Army's overall modernization strategy (1) focusing its S&T efforts on the Future Force, (2) meeting immediate SBCT operational needs, and (3) maintaining and improving the warfighting capabilities of the rest of the Current Force through a judicious combination of selected modernization, recapitalization and sustained maintenance of essential systems. The following paragraphs elaborate on some of the key CBRN systems in the Army's moderniza-

tion plans, although additional systems are also under development.

Key CBRN Modernization Programs

M31/M31A1/M31E2 Biological Integrated Detection System (BIDS)



Description. The BIDS is a collectively protected shelter mounted on a dedicated vehicle (M1097A1 HMMWV) and equipped with a biological detection suite employing complementary technologies to detect large area biological attacks. The P3I BIDS is capable of detecting all types of BW agents in less than 10 minutes, and identifying any eight agents simultaneously in less than 30 minutes.

Program Status. The NDI and P3I versions of the BIDS have been fielded. The M31E2 version is being fielded with a projected completion in FY05.

Stryker-NBCRV

Description. The Stryker-NBCRV will incorporate the Block II NBCRV integrated chemical and biological point detectors that will allow on-the-move standoff biological and chemical agent detection. The Chemical Biological Mass Spectrometer (CBMS) Block II will improve the detection and identification of liquid chemical agents while providing a

first-time biological agent detection capability to the reconnaissance platform. The Block II sensor suite will automatically integrate contamination information with data from onboard navigation and meteorological systems and rapidly transmit contamination hazard and clear area intelligence to the appropriate operations center. Integration of the common CBRN technical architecture will allow for expansion/upgrading of the onboard computers at minimal cost, as well as the command and control of CBRN-sensing UAVs and unmanned ground vehicles (UGVs) in the Future Force system.

Program Status. Stryker-NBCRV Milestone C was reached in 4QFY04 and this allows the start of LRIP. Production verification testing and initial operational test and evaluation (IOT&E) are planned for FY06-07. The FY06-11 plan funds Stryker NBCRV fielding to all SBCTs.

M56 Wheeled Smoke System (Coyote)

Description. The M56 Coyote provides large area multispectral screening for maneuver and support forces from the M1113 HMMWV. The M56 Coyote can generate large area obscurants throughout the battlespace to counter enemy reconnaissance, surveillance and target acquisition systems. Missions include providing static and mobile visual, infrared and/or millimeter wave (MMW) screening in the form of a haze, blanket, and curtain. Major components include a turbine smoke generating system. It has the capability of providing continuous visual smoke for up to 90 minutes and 30 minutes of infrared screening smoke. A P3I will add a 30-minute millimeter wave obscuring capability to defeat enemy radar RSTA devices and weapon systems. A two-person crew operates the M56 and has the capability to counter the threat arising from

the wide proliferation of advanced visual and IR sensors.

Program Status. Fielding of the M56 continues through FY05. Application of the MMW P3I begins in FY06 with the application of modification kits to previously fielded systems. A total of 241 systems will be upgraded with the MMW kit. The Army Acquisition Objective of 265 has been met.

Vehicle Obscuration Smoke Systems (M6 and M7)

Description. Vehicle obscuration smoke systems provide an immediate smoke screen that can obscure threat surveillance, target acquisitions, and weapon guidance systems in the visual through the infrared spectrum. The system provides approximately 20-120 seconds of obscuration, which enables the vehicle to maneuver out of the immediate threat area. The M6 countermeasure discharger is installed on Stryker platforms to provide this capability. The M7 Light Vehicle Obscuration Smoke System provides this capability for Up-Armored HMMWVs. Both systems utilize 66 mm grenades and a launcher configuration of four tubes. Multiple launcher systems are utilized to provide all-around screening capability.

Program Status. The M6 program is currently funded to equip all SBCTs. The M7 is not currently funded to fulfill all requirements for FY05.

Chemical Biological Protective Shelter (CBPS)

Description. CBPS consists of a lightweight multipurpose shelter (LMS) mounted on an expanded-capacity HMMWV variant and a 300-square-foot air beam supported soft shelter. CBPS provides a contamination free, environmentally controlled working area for



medical, combat service and combat service support personnel to obtain relief from the continuous need to wear chemical-biological protective clothing for 72 hours of operation. All ancillary equipment required to provide protection, except the generator, is mounted within the shelter.

Program Status. CBPS is currently undergoing a P3I to upgrade the system to a nonhydraulic system. CBPS received full materiel release in Oct 03. Field continues through FY11.

Collectively Protected Deployable Medical System (CP DEPMEDS)



Description. CP DEPMEDS enables field combat support hospitals (CSH) to sustain medical operations in a CB environment for 72 hours. CP DEPMEDS provides a clean, toxic-free, environmentally controlled patient treatment area, maximizing the use of existing equipment to the hospital unit base of fielded deployable medical systems/medical reengineering initiative CSHs for the Army.

The program is a multi-Service effort between the Army and Air Force. All Services use field hospitals, which are comprised of the same building block components. Hospitals vary in size and configuration between the Services. Collective protection is provided through the addition of M28 Collective Protection Equipment (CPE), CB-protected environmental control units and heaters, CB-protected latrines and water distribution systems; low-pressure alarms and other integration components necessary for a fully operational CB-protected hospital facility. All components are designed to integrate into fielded hospitals. Components will be packaged as a set to be provided to units fielding to threat areas. The CP DEPMEDS is installed during set up of the hospital.

Program Status. The FY06-11 program plan supports procurement of an additional eight systems bringing the total procurement to 20 systems. CP DEPMEDS will be prepositioned to support rapid deployments and placed in Army War Reserve.

Sorbent Decontamination System, M100

Description. The M100 Sorbent Decontamination System (SDS) is intended to replace the M11 and M13 Decon Apparatuses: Portable (DAPs) currently employed in operators' spray-down operations associated with immediate decontamination. The M100 SDS uses a reactive sorbent powder to remove chemical agent from surfaces. Use of the M100 SDS decreases decontamination time and eliminates the need for water.

Program Status. With initial issue complete, the M100 is now available for purchase using normal supply channels.

Joint Portal Shield Detector System (JPS)



Description. The Joint Portal Shield (JPS) is DOD's first automated networked biological detection systems. The system uses an innovative network of sensors to increase probability of detecting a BW attack while decreasing false alarms and consumables. The JPS system can detect and presumptively identify up to eight BW agents simultaneously in less than 25 minutes.

Program Status. JPS operates in Korea and Southwest Asia. Twelve additional sites have been directed by the Deputy SECDEF for Pacific Command and Central Command combatant commanders. The Defense Emergency Response Fund (DERF) funds the upgrade of 237 fielded portal shield units with Biological Aerosol Warning Sensor (BAWS). Fifty-four additional units will be procured as part of CB Installation Protection Equipment.

Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)

Description. JSLSCAD is a lightweight, passive, standoff and chemical agent detector capable of providing up to 360-degree, on-the-move vapor detection from a variety of tactical and reconnaissance platforms at

distances up to 5 km. Enhanced early warning for contamination avoidance is the competency of the system. When avoidance is not possible, JSLSCAD will provide extra time for Soldiers to don full protective equipment.

Program Status. The JSLSCAD is in a five-year developmental effort that includes ground-, air- and sea-based platforms. Increment I provides initial capability to the Stryker-NBCRV and the JSLNBCRS. Increment II will seek a commercial off-the-shelf solution to support all ground mobile, fixed site, and shipboard applications, achieving FRP in FY08. Increment III will integrate and test the Increment II design into aerial platform applications.



Joint Service Lightweight NBC Recon System (JSLNBCRS)

Description. The JSLNBCRS is a HMMWV- or armor-based system that will provide rapid, on-the-move (up to 45 kph), standoff-and-point chemical agent vapor detection; on-the-move, point chemical agent liquid detection and identification; stationary point biological agent detection and identification; nuclear/radiological detection, warning, marking and solid/liquid sample collection capabilities on a host platform that is capable of protecting the



crew from chemical and biological hazards. The JSLNBCRS is a detection system which is an integrated SoS consisting of an on-the-move, standoff chemical agent vapor detector; Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) point chemical agent liquid/vapor detector/identifier; Chemical Biological Mass Spectrometer Block II (CBMS Block II), a dismountable handheld chemical agent monitor; Improved Chemical Agent Monitor (ICAM), a point biological agent detector/identifier; and Joint Biological Point Detector System (JBPDS), a CB agent sample collector; and fielded AN/VDR 2 and AN/UDR-13 radiological detectors mounted on a mobile platform. It supports contamination avoidance in the battlespace.

Program Status. IOC is scheduled for 1QFY05. FUE is projected for FY06.

Joint Chemical Agent Detector (JCAD)

Description. JCAD will be a combined portable monitoring and small point chemical agent detector for individual Soldier applications. This handheld, pocket-sized detector will be designed to automatically detect, identify and quantify chemical agents.



Program Status. Testing of candidate systems is underway at Edgewood Chemical Biological Center. Increment I fielding is scheduled for 4QFY07.

Joint Warning and Reporting Network (JWARN)

Description. The JWARN provides standard integration and analysis of NBC detection

information with command, control, communications, computers, information and intelligence (C4I2) on the battlefield. JWARN automates the NBC warning and reporting processes now performed manually throughout the Services. It will provide additional data processing, production of plans and reports, and access to specific NBC information to improve the efficiency of NBC personnel.

Program Status. Block I (D) software featuring some functionality has been fielded and is in use in many Army major commands (MACOMs). The JWARN IOC is scheduled for FY07 (objective)/FY08 (threshold). IOC shall be achieved when JWARN is fielded to initial units and training bases, unit personnel are trained, training base is established, and a maintenance system is in place.

Joint Service Man-Portable Decontamination System (JSM-PDS)

Description. JSM-PDS will be a man-portable system consisting of decontamination applicators and decontaminants, if required, for use primarily in immediate and operational decontamination operations/scenarios. JSM-PDS replaces the M11 and M13 DAP.

Program Status. IOC Increment I is scheduled for FY07. FOC Increment I is scheduled for FY08.

Joint Service Sensitive Equipment Decontamination (JSSED) System

Description. The JSSED provides the capability to decontaminate CB warfare agents from sensitive equipment, vehicle and aircraft interiors, and associated cargo that cannot be decontaminated and reused through current decontamination procedures. JSSED is required to reach contaminated areas of the equipment that are not accessible via a

surface wipe. JSSED will limit the transfer of contamination; restore mission essential functions; increase survivability; allow for lower levels of MOPP sooner; allow high-cost sensitive equipment to be reused instead of destroyed; and allow maintenance personnel to be able to work on the equipment without having to wear protective clothing.

Program Status. IOC is scheduled for FY09. FOC is scheduled for FY11.

Joint Service Transportable Decontamination System (JSTDS)

Description. This mobile (tactical) system provides the capability to conduct operational and thorough decontamination of medium to large mobile or fixed equipment, aircraft, facilities, shelters, surface areas and terrain. This system will be vehicular mounted but may be dismounted for specific operations, thereby enabling the decontamination system to be moved to the equipment requiring decontamination. This system will be initially located in the UE to enable freedom of action by the UA as required. Specifically, this system will be a cross-spectrum system designed to support Current and Future Forces, or homeland security operations.

Small-Scale System (JSTDS-SS) replaces the M17 Lightweight Decontamination System (and M12A1 power-driven decontamination apparatus in non-SRC 03 units), and will be transportable via HMMWV/HMMWV trailer. It will be used during operational and thorough decon, and will come with a noncorrosive, nonhazardous decontaminant.

Program Status. Milestone B was signed on 1 Mar 04. Milestone C decision is scheduled for Sep 05. IOC is scheduled for FY07. FOC is scheduled for FY09.

Large-Scale System (JSTDS-LS) replaces the M12A1 Power-Driven Decontamination Apparatus in SRC 03 heavy decontamination units; and will be capable of decontaminating fixed sites, terrain, large aircraft and seaports of debarkation (SPODs)/aerial ports of debarkation (APODs).

Program Status. Milestone B was signed on 1 Mar 04. IOC of 350 systems is scheduled for FY07. FOC is scheduled for FY09.

Joint Service Personnel/Skin Decontamination System (JSPDS)

Description. JSPDS replaces the M291 SDK and will decontaminate the skin and individual equipment and weapons of personnel and casualties, including those with wounds that have been exposed to CBRN warfare agents/contamination and toxic industrial materials/toxic industrial chemicals (TIMs/TICs) and nontraditional agents (NTAs). IOC is scheduled for FY07 and will be achieved when JSPDS is fielded to forward-deployed units, rapid deployment units and the training base; unit personnel are trained; a training base is established; and a maintenance system is in place. Total number of actual combat systems is 66,380.

Program Status. FOC is scheduled for FY09 and will be achieved when the JSPDS Army Acquisition Objective (AAO) is reached and all authorizations are filled. Total number of systems is 2,285,451.

Joint Service Sensitive Equipment Decontamination Joint Platform Interior Decontamination System (JSSED-JPID)

Description. JSSED-JPID will be a family of applicators and decontaminants that will provide thorough decontamination capabilities in hostile and nonhostile environments. The

JSSSED-JPID systems will provide the ability to the Army to thoroughly decontaminate the interior of vehicles and aircraft which contain sensitive equipment (avionics, electrical, electronic, and environmental systems equipment) and the associated cargo. The use of rapid/effective decontamination systems to decontaminate vehicle and aircraft interiors that contain sensitive equipment will enable the warfighter to restore combat power if the interior of the platform becomes contaminated, and to continue their mission in lower levels or no MOPP. Thus the JSSSED-JPID system will significantly enhance the Future Force's ability to remain mission capable in a CBRN environment.

Program Status. The IOC for this system is projected in FY07, with FOC planned for FY12.

Joint Service General Purpose Mask (JSGPM)

Description. JSGPM is designed to replace the M40/M42 series mask. JSGPM will increase the Soldier's ability to perform mission essential tasks because physiological burdens such as breathing resistance will be substantially reduced, and the field of vision will be significantly improved. A key feature of the mask will be reduced weight and bulk.

Program Status. JSGPM replaces existing mask systems (M40/M42) at the end of their 10- to 15-year service life. Fielding is scheduled to begin in 4QFY06.

Joint Biological Agent Identification and Diagnostics System (JBAIDS)

Description. The JBAIDS program is the first effort by the DOD to develop and field a common medical test equipment platform among all the Services. JBAIDS is an evolutionary, three-block, reusable, portable and

modifiable biological agent identification and diagnostic system capable of simultaneous reliable identification of multiple biological agents of operational concern and other pathogens of clinical significance. JBAIDS Block I tests a variety of environmental samples and clinical specimens for nondiagnostic purposes, and performs confirmatory testing of samples collected by existing and future biological detection systems. Block II focuses on the militarization and hardening of critical toxin identification technologies based on a COTS/NDI candidate system. JBAIDS Block III is planned to be a handheld, FDA-approved device capable of providing the full range of biological agent identification and diagnostics.

Program Status. JBAIDS Block I is currently under development and testing, with a LRIP for 1QFY05. It is scheduled for an FRP decision in 4QFY05. Block II development is scheduled for FY07.

National Guard Weapons of Mass Destruction Civil Support Team (WMD-CST) Unified Command Suite (UCS)

Description. The UCS provides the WMD-CST with mission essential C4 support. The UCS capability includes state-of-the-art radio, satellite and cellular communications subsystems that will provide dedicated LOS and NLOS secure and nonsecure intra-team and intra-vehicular voice and data reachback. The UCS provides voice, data and video reachback capabilities to WMD-CST operations centers, incident command posts, and the various military forces, federal, state and local law enforcement and emergency service units that support domestic incident responses. These communications subsystems operate in handheld, base station and vehicle configurations capable of interoperating with military and commercial radio communica-

tions systems in various terrain and urban environments. This system is currently not overseas deployable.

Program Status. In production and fielded with National Guard WMD-CSTs throughout the United States.

National Guard Weapons of Mass Destruction Civil Support Team (WMD-CST) Analytical Laboratory Suite (ALS)

Description. The ALS provides the WMD-CST with a mobile laboratory capability that allows the CST commanders to analyze samples on-site in support to the first responder incident commander. The ALS is a mobile analytical laboratory capable of providing the CST a presumptive analysis for the presence of chemical, biological or radiological contamination. The ALS is a System Enhancement Program to replace the current Mobile Analytical Laboratory System and interim Dismounted Analytical Platform. The ALS provides advanced technologies with enhanced sensitivity and selectivity in the detection and identification of chemical warfare agents and toxic industrial materials.

Program Status. In production and fielded with National Guard WMD-CSTs throughout the United States. This system is currently not overseas deployable.

CBRNE Installation Protection Program (IPP)

Description. This program, initiated after the catastrophic attacks in 2001, will provide installations with an integrated and effective CBRNE installation protection capability consisting of CBRNE detection, identification, warning, protection, decontamination, information management, medical protection, surveillance and response. The program

objective is to improve the installation's emergency first responder capability and leverage existing physical security, logistics, sustainment, maintenance and C2 capabilities to maximize effectiveness while reducing the resource impact (time, funding and personnel) on the installation. This program is currently funded to address 62 of 187 Army posts.

Program Status. The first installations will be fielded with their initial CBRNE response capability sets in FY05. The remainder of the initial 62 installations will be equipped through FY11. The systems provided to the installations are not deployable.

CBRN Summary

Among the significant changes to the future strategic environment, proliferation of WMD is recognized as a principal asymmetric threat capable of providing an adversary military advantage to neutralize overwhelming conventional superiority. Having an effective CBRN defense is a necessary component of any defense strategy that seeks to demonstrate to the adversary that use of WMD will not gain the advantage sought. Modernizing the force while conducting a robust S&T effort is critical to preventing technological surprise from new CB agents or different employment means. Recapitalizing and maintaining the Current Force is necessary to enable transformation and mitigates risk by extending the useful life of current systems within fiscal constraints. This modernization plan assures a disciplined approach to meeting mission-based requirements and secures orderly change as we transition to the Future Force.

Summary of Protection

The Army's protection capabilities must continue to improve against an expanding,

significant threat arsenal, which includes information operations, terrorist attacks and other asymmetric threats. The Army's AMD and CBRNE defense modernization programs and leveraging of space-based protection assets are increasingly important to developing these protection capabilities. These critical systems and the sound, doctrinal operational concepts they support will mitigate these threats by improving freedom of action for friendly forces during deployment, maneuver, and engagement and providing better protection at all echelons, both at home and abroad. In this way, Army protection capabilities will enable force application capabilities of the Joint Force.

Appendix 3: Focused Logistics (FL)

Focused logistics (FL) is the ability to sustain the Joint Force with the right personnel, equipment, supplies and support in the right place at the right time, and in the right quantities, across the full range of military operations. This is made possible through a real-time, web-based information system providing accurate, actionable visibility as part of a COP, effectively linking the operator and logistician across joint forces. Key support functions include deployment distribution, global mobility, ability to sustain the force and medical support to combat forces.

This appendix provides a brief discussion of the Army's FL capabilities that support required Joint Force capabilities and the key materiel programs associated with these capabilities. Highlighted are improvements to the deployment distribution process, the equipment-lift capabilities necessary to make the Army more strategically responsive, and key materiel programs that provide assured mobility and force sustainment.

Protecting Tactical Wheeled Vehicles

As an important part of the Army's responsibility to sustain the Joint Force with equipment and directly related to the critical requirement to provide protection against an adversary's effect on that force, the Army has initiated an aggressive approach to protect its tactical wheeled vehicles. The highest priority is to provide such protection to our forces involved in ongoing operations in Iraq and Afghanistan, though integrated efforts will be both short and long term in their impact. The immediate goal is to provide by Jun 05 some type of armor protection to all tactical wheeled vehicles operating in these theaters. To help accomplish this, the Army has established an Armoring Task Force with the purpose of identifying requirements, developing an integrated strategy, determining ways to accelerate production and installation of armor solutions, determining funding solutions, and identifying a longer-term strategy.

The Army is using three distinct levels of armor protection that are being provided to tactical wheeled vehicles. The first category, level I, refers to fully integrated armor installed during production and retrofit. The second, level II, includes officially approved add-on armor kits that can be installed on vehicles, either in the United States or in the theater of operations. Finally, the third category, level III, includes locally fabricated armor using approved steel, which provides added protection as an interim measure until a level I or II kit can be applied. These various levels are being employed, along with ongoing efforts to assess and test other technological improvements, to ensure that all tactical wheeled vehicles involved in operational missions are equipped with the best protection available.

Considerable efforts as well as significant progress have been made in this endeavor since late 2003, and the pace has been accelerated in response to the rapidly changing operational requirements. The initial priority has been placed on up-armoring light tactical vehicles, primarily the HMMWV, by a combination of increased production and providing add-on armor kits for older vehicles. The requirement for armoring these vehicles has escalated dramatically from a few hundred in Mar 03 to over 8,000 by Dec 04, and the Army has already provided over 6,000 and expects to meet current requirements by Mar 05. The priority has now shifted to providing armor

protection for medium and heavy tactical wheeled vehicles, and these current requirements are due to be met by Jun 05.

The Army has developed a strategy for addressing and funding these urgent requirements in the near term and sustaining it over the longer term. A summary of the key elements of the strategy, the current requirements, and progress to date is shown in Figure D-8.

In addition to the essential materiel solutions to these operational requirements today, the Army is also fully involved in pursuing non-

Key elements of strategy are:

- Manage the apportionment of available up-armoring assets (kits, steel, glass and cabs) to ensure available assets are used in accordance with the supported commander's priorities.
- Strengthen manufacturing programs to ensure that each month we produce the maximum number of kits focused on key truck models.
- Establish a forum that links the support commander (USARCENT) and the force providers (FORSCOM, USAREUR, USARPAC) with AMC HQDA to ensure that the Army plans and executes a synchronized program.
- Communicate the tactical wheeled vehicle (TWV) up-armoring program so that senior leaders across the Army have common visibility of the TWV up-armoring program.
- Priorities are determined by ground commanders based on mission and risk regardless of component.

Total requirement:

- All wheeled vehicles in the area of responsibility will have levels I, II or III protection by Jun 05.
- 8,275 for up-armored HMMWVs (UAH) and 13,872 add-on armor kits for other HMMWVs.
- The medium and heavy tactical wheeled vehicle fleets require another 10,682 armor kits or cabs.
- All levels I and II vehicles will remain in theater as stay-behind equipment.

Progress to date:

- Completed over 22,000 vehicles in 14 months.
- 82 percent of the UAH requirement met. Continue to produce 500 UAH kits per month until the total requirement is met in Mar 05 and ramp from 450 up-armored vehicles per month to 550 per month.
- Producing 350 medium kits per month and ramping up to 1000 per month by April 2005. Production for heavy TWV kits will be completed in Feb 05 for HEMTT and HET and will continue at 400 PLS and M915 kits per month starting in Mar 05.

Figure D-8. Protecting Tactical Wheeled Vehicles

materiel measures that can directly improve the sustainment and protection of the Joint Force. These steps include the work of the Army-led JIEDD TF, which is working across the interagency and international spectrum on materiel and nonmateriel solutions to defeat this threat. Tangible results include effective countermeasures, fielding systems that increase detection and enhance detonation, and training solutions that increase awareness and incorporate lessons learned. In the end, this is and will remain a high-priority task for the Army and one that is fully integrated into equipping and operational requirements and responses.

Discussion of Key Equipment— Protecting Against IEDs

Warlock

Description. Warlock is a family of systems designed to protect against remote-controlled improvised explosive device (RCIED) ambushes. It is a quick-reaction capability (QRC) currently providing force protection in Operation Iraqi Freedom and Operation Enduring Freedom. The Warlock establishes a limited protective “electronic bubble” for personnel and equipment. It is an SoS solution teaming intelligence, operations (tactics, techniques and procedures), training and materiel to mitigate the RCIED threat.

Program Status. Warlock is not yet a program of record and is not included in the FY06-11 program plan. This rapid fielding initiative program, led by the Joint IED Defeat Task Force (JIEDD TF) as the user representative, has received funding from congressional additions, the Iraqi Freedom Fund, the REF, and a DOD funding decision. Working against a rapidly evolving threat, the program manager, Counter-RCIED Electronic Warfare (CREW) is rapidly developing Warlock Spiral

II, estimated to begin production in 4QFY05, and has plans for Spiral III and Spiral IV to meet the needs of the Future Force. The Spiral I production will equip USCENTCOM with almost 8,200 Warlock devices by the end of 4QFY05, before Spiral II fielding begins.

Improving the Deployment Distribution Process

The central responsibility of the Army under Title 10, U.S. Code, is to conduct prompt and sustained operations on land as a component of the Joint Force. Fulfilling this responsibility rests, to a very large extent, on the Army’s ability to rapidly project lethal, survivable and sustainable combat power as part of the Joint Force. While the Army is dependent to a large extent on Joint Force projection capabilities, we continue our own efforts to enhance our deployment capability and responsiveness while reducing our deployment requirements. Our efforts will continue to enhance our speed and agility in today’s threat environment.

We have increased our capabilities to defeat both anti-access and area-denial efforts through speed of deployments, leveraging information technology, modular force design, future concepts and improved equipment. The Army provides unique capabilities to gain, enhance and maintain assured access. We have reviewed the current security environment and initiated actions to reposition forces and equipment to support today’s security environment and tomorrow’s emerging threats. Forward-deployed forces, prepositioned stocks, regional bases/flotillas and facilities, assured access through standing agreements with allies and other nations, regional engagement by special operation and conventional forces, and multinational exercises are all instrumental in shaping a position of strength in a given region.

Improving deployment and sustainment of the force requires enhanced command and control and information systems that network and integrate information and data across the Joint Force. The Army continues to work toward this standard in our Future Force development. The Army currently has a number of automation systems, each with a joint foundation, that are designed to assist in the overall command, control, movement, and tracking of personnel and equipment during deployments and operations.

The design and emergence of systems such as the Global Combat Support System (GCSS) Army, Battle Command Sustainment Support System (BCS3), and Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II) will enhance the deployment and sustainment of forces by facilitating the exchange of data between Army units and the combatant commanders, thus providing improved situational awareness and the ability to respond faster to unforeseen circumstances.

Equipment Lift Capabilities

Extensive analysis and wargaming has shown that both current as well as many planned strategic and intra-theater air and sealift platforms do not support future warfighting concepts. Many current sealift platforms require deep-water ports to berth and off load. The availability of such ports is limited geographically to industrial nations and they are conspicuously absent in most nations south of the equator.

Further, the limited number of these ports makes them more vulnerable to many anti-access measures and jeopardizes the deployment of the joint warfighting force. Advanced sealift capabilities that provide for brown water and over-the-horizon sealift are

critical to support efforts designed to defeat anti-access and area-denial methods. High-speed, shallow draft vessels can leverage numerous ports in all areas of the world and thus support the concept of multiple, parallel seaports of debarkation, which is fundamental in overcoming anti-access challenges.

Existing strategic air platforms such as the C-5 Galaxy can carry enormous loads but are dependent on world-class airports for both embarkation and debarkation. The C-17 and C-130 provide the only capability today of bypassing these major chokepoints from appreciable distances while maximizing load capacities. Even so, they are still constrained to at least a 3,000-foot runway and in many cases (weather, terrain and environment dependent) may require 5,000-6,000 feet with sizeable loads. The venerable C-130 is further hampered by significant payload, altitude and range limitations and cannot be refueled in air. These capability limitations not only severely constrain our ability to execute assured access strategies, they demand a nearby intermediate staging base to transload equipment, personnel and sustainment from inter- to intra-theater lift platforms. None of the airlift platforms are suitable for air sustainment, nor can they support rapid shift of maneuver forces and sustainment across the breadth and depth of the battlespace.

To overcome the limitations of these strategic air platforms, larger capacity Super Short Takeoff and Landing (SSTOL) and/or Heavy Lift Vertical Takeoff and Landing (HLVTOL) platforms are required in substantial quantities for air movement of the Future Force. Shallow draft high-speed sealift and advanced, intra-theater sealift designs are required for austere seaport access. Whether the goals encompass operational maneuver from strategic distances, use of multiple simultaneous austere points of entry, vertical maneuver and

envelopment, dominant maneuver, precision engagement and focused logistics, SSTOL and HLVTOL technology solutions are needed sooner rather than later.

These kinds of platforms further provide a quality of versatility and adaptability necessary to enable Army and joint force commanders to adjust movement of forces and sustainment in stride in response to the evolution of the campaign and the enemy's own actions. Funding the S&T and procurement required to bring advanced lift capabilities to the Joint Force is a joint challenge. The Army alone cannot develop, procure and field such systems due to both budgetary and regulatory constraints. Instead, the Army encourages joint S&T emphasis on the following efforts.

Shallow Draft High-Speed Ship (SDHSS).

An SDHSS is a strategic ship that can deliver troops, equipment, and sustainment together in sufficient size and at a considerable speed to provide immediate combat power to the joint force commander. Because it has a shallow draft feature, it can bypass established seaports and discharge its combat power wherever there is at least a 10-foot draft and an acceptable offload site. With a C4I suite onboard, commanders can conduct en route planning, receive intelligence updates, and integrate with the joint force commander.

Super Short Takeoff and Landing (SSTOL)

Aircraft. The SSTOL is a joint aircraft with the ability to carry two FCS platforms 3,500 miles. It can land on 750 feet of road or field in the joint area of operations, which avoids fixed airfields and adds innumerable points of entry. It provides the joint force commander the ability to achieve operational surprise.

Heavy Lift Vertical Takeoff and Landing (HLVTOL) Aircraft. The HLVTOL is an aircraft with the ability to deliver one FCS

within a radius of 1,000 miles. The ability to insert combat vehicles vertically gives the commander unparalleled speed and agility. Generally independent of ground conditions, it enables the joint force commander to conduct vertical envelopment and vertical maneuver, as well as the ability to avoid predictable, linear patterns of operation. It also offers significant benefits to vertical joint logistics over-the-shore.

Discussion of Key Equipment-Lift Materiel Programs

Joint High Speed Vessel (JHSV) (formerly the Theater Support Vessel (TSV)



Description. The JHSV is the operational version of the strategic SDHSS. It is another source of flexibility and agility within a theater as it allows the joint force commander to insert combat power and sustainment into austere ports worldwide. Supporting APS and Joint Logistics Over-the-Shore (JLOTS), the JHSV expands the reach and possibilities of prepositioning both on land and afloat. The JHSV is a high-speed, 40+ knots, shallow draft sealift platform that will maximize current commercial ferry technology. The JHSV provides the capability to conduct operational maneuver and repositioning of intact unit sets while conducting en route mission planning and rehearsal. This intra-theater vessel provides the combatant commander with increased

throughput, increased survivability, increased responsiveness and improved closure rates. This transport transformation enabler helps obtain force deployment goals as well as achieving full distribution-based logistics.

Program Status. The Department of the Army and Department of the Navy are combining their requirements in accordance with the JCIDS, merging the Army's TSV and the Navy's High-Speed Intra-Theater Surface Connector programs. Although the Army initially determined a requirement for 24 vessels and a critical requirement for 12 vessels, a joint requirements and solution set has not yet been determined. To insure joint interoperability, minimize redundant capabilities and gain economies of scale, the Army, Navy and Marine Corps have signed a Memorandum of Intent to transfer the acquisition lead for the Army program to the Navy. The plans for funding the JHSV program will be determined as part of the joint acquisition process that will be executed by the acquisition team and the program office, led by the Department of the Navy, in close coordination with the Department of the Army. An ACTD is ongoing and scheduled for completion at the end of FY05.

Joint Precision Airdrop Systems (JPADS)

Description. JPADS is a high-altitude-capable, autonomously operated precision airdrop system. The system consists of a family of different-sized airfoils, allowing airdrop of weight categories up to approximately 42,000 pounds. JPADS is not totally wind dependent and is releasable from altitudes up to approximately 35,000 feet mean sea level. Based upon winds and release altitude, 50 km standoff distances are also possible. Space-based GPS technology provides for aerial navigation/maneuverability throughout

descent, steering into the wind as necessary, and permitting highly accurate ground touch-down locations. JPADS is a critical logistics transformation enabler that facilitates dedicated aerial sustainment and helps achieve full distribution-based logistics.

Program Status. Program maturity for JPADS capabilities continues through FY05. The Milestone B decision for the 2,000-pound variant is scheduled for the second quarter of FY05. The 10,000-pound variant is expected to mature from ACTD to program management (PM) and is scheduled for a Milestone A decision in 1QFY05. In response to an Operational Needs Statement, the JPADS 2,000-pound variant was deployed to OIF with an urgent material release. The PM will leverage actual field experience and data to augment the system's upcoming test program.

Assured Mobility Capabilities

The engineer future force will be organized, manned, equipped and trained to be more strategically responsive, deployable, agile, versatile, lethal, survivable and sustainable across the full spectrum of military operations. The future engineer force structure will be comprised of modular, scalable and flexible organizations for prompt and sustained land operations capable of quickly transitioning between changes in task, purpose and directions.

Assured mobility capabilities support force application by maneuver forces as well as focused logistics by sustainment forces. A critical factor in sustaining operations is the ability of forces to move and to properly maneuver over the depth and breadth of the battlefield while impeding, slowing or blocking our enemy's movement. Current operations in OEF and OIF highlight the enduring importance of systems that provide ground forces

the capability of detecting, defeating and emplacing minefields and other obstacle effects, allowing unparalleled freedom of maneuver and force sustainment. This capability supports the commander's dominant maneuver capabilities that are critical to gaining the positional advantage needed to retain the initiative and enhance joint precision fires as well as ensuring sustainment force movement remains effective across the distributed battlefield environment.

Discussion of Key Assured Mobility Materiel Programs

AN/PSS-14 Handheld Standoff Mine Detection System (HSTAMIDS)

Description. The AN/PSS-14 is a handheld mine detector capable of detecting metallic and nonmetallic antitank (AT) and anti-personnel (AP) mines. It combines ground penetrating radar (GPR) and an improved metal detection to provide a robust probability of detection for both large and small metallic and



nonmetallic AT and AP mines. The AN/PSS-14 significantly improves the detection of the smaller, low-metal AP mines by allowing the operator to tune out metallic clutter. The system requires 40 hours of operator training and frequent refresher training due to the erosion of skills over time. The systems will be fielded with complete training support package to include

a Sweep Monitoring System (SMS) and specially constructed training mine simulators.

Program Status. AN/PSS-14 entered low rate production in FY03 and achieved Milestone C in 1QFY04. The program is projected to receive full material release in Sep 05. Available systems are fielded to designated engineer units currently deployed or soon to deploy in support of OEF and OIF operations.

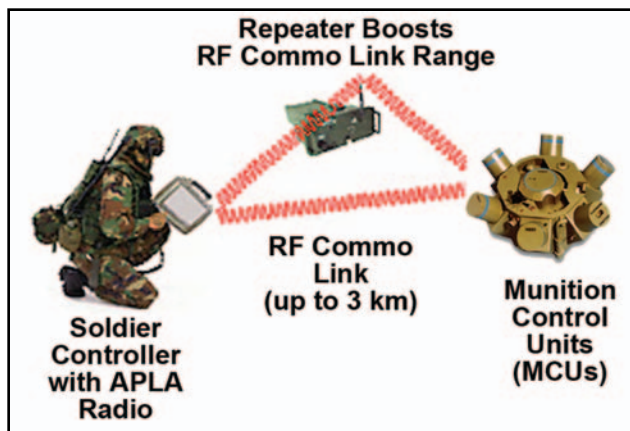
Ground Standoff Minefield Detection System (GSTAMIDS)



Description. GSTAMIDS Block 0 is a route-clearance system capable of clearing a 20 km route in 12 hours using a remote-operated detection vehicle, the Buffalo Mine Protected Clearance Vehicle (MPCV), and a towing vehicle with proofing trailers. The detection vehicle utilizes a multisensor mine-detection suite consisting of metal detection, GPR, quadruple resonance and infrared to locate antitank mine types. The MPCV provides Soldiers a blast-protected vehicle from which to remotely operate the lead detection vehicle and mine-detection subsystems. GSTAMIDS FCS is a time-phased developmental program designed to provide the warfighter a capability to execute on-route countermining missions for the FCS. GSTAMIDS FCS will be employed on an overpass-capable countermining MULE variant UGV. The system will employ future improvements that will automatically detect, mark and neutralize all metallic and nonmetallic AT mines.

Program Status. Two GSTAMIDS Block 0 systems are currently fielded and supporting ongoing combat operations in OIF. GSTAMIDS FCS will begin engineering and manufacturing development in with project Milestone C in FY08.

Spider (Antipersonnel Land Mine Alternative (APL-A))



Description. The Spider APL-A is a compact, lightweight, hand-emplaced, AP munitions system designed to replace the M16 and M14 AP mines for Army and Marine use. The Spider is comprised of three main assemblies: a remote control system, a repeater and up to 84 munition control units (MCU). Each MCU holds up to six miniature grenade launchers and is embedded with a GPS to provide accurate location to field components. The remote control unit (RCU) allows for man-in-the-loop, on-off-on and self-destruct capabilities via remote control. Additionally, Spider includes a munition adapter module that will initiate electric blasting caps and shock tubes to fire other lethal (Claymore, SLAM) and nonlethal munitions.

Program Status. Spider is currently in the SDD phase and projected to reach Milestone C in 1QFY06. LRIP will begin in FY06 and FRP in FY07. FUE is scheduled for FY07 and IOC in FY08.

Improved Ribbon Bridge (IRB)

Description. The IRB, fielded to multi-role bridge companies (MRBC), provides a dependable roadway or raft capable of crossing assault vehicles or tactical vehicles over nonfordable wet gaps. The capability of this system is military load classification (MLC) 100 wheeled and MLC 80 tracked. The bridge sections are transported by Common Bridge Transporters (CBTs). The CBT is a heavy, expanded mobility tactical truck providing enhanced, multipurpose transportation capabilities. Each MRBC will have the capability of emplacing 210 meters of bridging. The system is external airlift transportable by CH-47 and CH-53 helicopters. The bridge bays are air transportable, partially disassembled, in C-130s. The IRB has enhanced capabilities of operation in swifter water speeds up to 10.3 feet per second and over 2.1 meter banks. It provides a 4.5 meter wide roadway, improved hydrostatic capabilities, and various other design improvements.



Program Status. A five-year, multi-year contract awarded in FY00 provides for 13 of 20 MRBCs with the IRB. Four units were fielded in FY03, with the remaining 9 units being fielded with the IRB in FY04-05.

Rapidly Emplaced Bridge System (REBS)

Description. The REBS is a wheeled vehicle-launched bridge system providing a four-meter roadway width, MLC 30 Tracked (T) and Wheeled (W) normal and MLC 40(T)(W) gap crossing capability up to 13 meters. Transported on a CBT, each SBCT will have 4 REBS. This system is transportable by CH-47 and CH-53 helicopters and C-130 aircraft. Two Soldiers can deploy the REBS in the daytime within 10 minutes with little or no site preparation.

Program Status. A five-year, multi-year contract was awarded in FY01 for 18 systems with an option for 22 systems. FUE is scheduled for 3QFY05.

Dry Support Bridge (DSB)

Description. The DSB is a modular bridge that can span a 40-meter gap and can be emplaced in 90 minutes by eight Soldiers. It significantly reduces the manpower and time needed to construct a tactical bridge as compared to current systems and possesses greater load capability. One bridge set provides either a 40-meter bridge or two 20-meter bridges. The bridge will cross MLC 96W/70T traffic and will allow the crossing of a heavy-equipment transporter carrying a combat-loaded M1 tank. The DSB consists of a launcher permanently mounted on a PLS, three CBTs and three PLS trailers that carry the modular components as palletized loads. A bridge set consists of six M1077

flat-rack loads of bridge components, one M1077 flat-rack load of launch beams and a launcher vehicle.

Program Status. A multi-year contract awarded in FY00 provides the DSB to 15 of 20 MRBCs. Fielding initiated in FY03 will continue at approximately two MRBCs per year for systems funded.

Sustainment Capabilities

Army forces must be sustainable across the spectrum of conflict. Sustainability requirements reflect the continuous, uninterrupted provision of combat service support to Army forces. A full-spectrum Army will require a combat service support reach capability that allows commanders to reduce stockpiles in theater while relying on technology to provide sustained velocity management and real-time tracking of supplies and equipment.

Leveraging information technology and innovative concepts to develop an interoperable, joint command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) architecture is also critical to the development of a joint operational picture that includes logistics information. Future Force units will “see first” by identifying current status of equipment readiness and sustainment requirements and the flow of logistics to enhance combat power.

The Current Force has employed advanced technologies coupled with a ubiquitous array of networked ground, air and space sensors to provide the commander an unprecedented logistics operating picture. Sensors (RF tags and interrogators) coupled with the Movement Tracking System (MTS) have enabled a clear picture of the movement of supplies to the warfighter.

Future data fusion and systems, like the joint Global Information Grid (GIG), coupled with innovative leader training, will enable logistic decision makers to view a synthesized COP of sustainment requirements. This COP will provide near real-time status and locations of inventories to effect combat power. This will enable the commander to develop and evaluate effective offensive and defensive courses of action in line with logistical parameters.

The COP produced by seeing first will allow leaders of the Joint Force to understand current logistic postures and supplies and the ability to respond to known requirements. Leaders at all levels—strategic, operational and tactical—will observe the COP and simultaneously analyze and share assessments through a collaborative planning process enabled by information technologies.

Future Force commanders will be able to leverage this information to enhance collaborative planning, reduce the decision cycle and seize the initiative, build combat power prior to, during and after operations.

The BCS3 embedded within the ABCS, and the C4 and ISR enhancements will improve the connectivity and network between tactical, operational and strategic units and provide a logistical COP to all commanders. ABCS is interoperable with both joint and multinational systems and leverages theater assets, like the Joint Surveillance Target Attack Radar System (JSTARS).

Discussion of Key Sustainment Materiel Programs

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

Description. TC-AIMS II is a Logistics Transformation enabler that establishes the base-

line for the deployment infrastructure needed to meet Future Force deployment objectives. The Army is the lead for the development of this joint system, which addresses critical shortfalls in the movement of materiel and personnel in support of DOD operations and the joint deployment process. CJCSI 3020.01 directed the Services to field TC-AIMS II to their early-deploying units by the end of FY03. TC-AIMS II merges the best business practices of the current Service-unique transportation automated information systems into a single system that combines the requirements for unit movement, Installation Transportation Office/Transportation Management Office, and theater distribution functional areas as well as integrating several legacy systems of each of the four Services. TC-AIMS II improves joint capabilities for rapid worldwide deployment and redeployment, and enables individual units the autonomous capability to conduct rapid crisis response at BCT level. Each battalion and separate company will be trained on TC-AIMS II and provided with a complete suite of computer hardware.

Program Status. The TC-AIMS II program has been segmented into five blocks of requirements that support a spiral software development strategy. TC-AIMS II Block I was fielded to USAREUR, fielding continues to the Army and the USN to achieve a FOC in all Services by FY09.

Movement Tracking System (MTS)

Description. MTS is a critical logistics transformation enabler. It provides continuous CS/CSS asset visibility and situational awareness for the joint logistics corporate enterprise, enables expeditionary logistics, and is a key step in achieving the sense-and-respond capabilities required to support network-centric warfare operations. MTS assists CS/CSS unit commanders in planning and executing



operations with the capability to identify and track positions, monitor progress, and communicate with tactical wheeled vehicles supporting CS/CSS operations within the tactical area. MTS supports BFT by passing position location information into the logistics COP via BCS3. MTS is a satellite-based tracking/communications system consisting of mobile units, transceivers, control stations, a GPS, common operating software and MTS-unique software.

Program Status. MTS has been fielded with a priority given to units supporting OIF and units undergoing reset following rotation from OIF. These have included 3rd Infantry Division (ID), 4th ID, 42nd ID and SBCTs. The system will continue fielding with phased upgrades to include embedded GPS, integrated radio frequency identification (RFID), and anti-spoofing technology. Current funding levels will permit fielding of 48 percent of the Army Acquisition Objective (37,718) to AC and RC through FY11.

Battle Command Sustainment Support System (BCS3) [previously the Combat Service Support Control System (CSSCS)]

Description. The BCS3 is a decision-support system embedded within the overall ABCS that assists commanders and their staffs in planning and executing CSS operations and is

key to building and sustaining combat power in a continuous operational environment over extended distances. BCS3 will rapidly collect, store, analyze and disseminate critical logistics, medical and personnel information. BCS3 is the CSS component of the ABCS, as well as a key logistics enabler in the Army's transformation efforts and will be interoperable with GCSS Army. BCS3 is comprised of computer units, common operating software and unique software. BCS3 is deployable in a tabletop configuration, with or without storage/transit cases, and in Standardized Integrated Command Post Systems (SICPS) configurations.



Program Status. BCS3 is being fielded under an urgent needs requirement to Army and USMC units supporting OIF and OEF. It will be fielded to U.S. Forces Korea early in CY05 as it continues development to reach full IOC in FY06.

Global Combat Support System (GCSS) Army

Description. GCSS Army is the Army's primary enabler for CSS transformation. It supports the functions of manning, arming,

fixing, fueling, moving and sustaining Soldiers and their systems. GCSS Army will be integrated with the Logistics Modernization Program (LMP) by use of the web-enabling features of Product Life-cycle Management Plus (PLM +) product to comprise the Single Army Logistics Enterprise (SALE). The result will be a seamless enterprise-wide logistics environment that spans from the factory to the foxhole, fully integrated with emerging joint battle command architectures. Both LMP and GCSS Army feature centralized total asset visibility, distribution-based supply, and enterprise-wide maintenance data, and near real-time logistics readiness information. Improved software will achieve CSS integration that is currently lacking in the Army's present business systems/processes. Most importantly, the modernization is targeted to improve business operations up and down the supply chain while providing the capabilities to meet Future Force CSS objectives.

Program Status. The Army selected SAP America, Inc.'s Enterprise Resource Planning software in FY04 to fulfill the requirements of GCSS Army. The Program is currently mapping GCSS Army requirements to SAP software modules to support design of the enterprise solution. Mapping is scheduled to be complete in FY05 with fielding to begin in FY07.

Combat Service Support Automated Information System Interface (CAISI)

Description. CAISI allows legacy and emerging battlefield CSS automation devices to electronically exchange information with logistics support areas and via tactical networks with other battlefield, CSS and sustaining base automated systems; provides commanders and managers an interface device to support current and future CSS doctrine during peacetime and wartime—concentrat-

ing users and transferring accurate, timely information on a highly mobile battlefield.

Program Status. CAISI is currently being fielded to Active and Reserve units in line with the Army transition to a modular force and the overall implementing directions in the Army Campaign Plan. CAISI continues to field units deploying in support of OIF.

Combat Service Support (CSS) Satellite Communications (SATCOM)

Description. CSS-SATCOM provides rapidly employed, BLOS communications enabling hardware to logisticians at the tactical and operational levels. The program, which grew out of the G-4 Connect the Logistician Focus Area, provides COTS-based very small aperture terminals (VSAT) and a supporting, global infrastructure to logistics activities integrated within and supporting the Army's modular force structure.

Program Status. CSS-SATCOM has completed fielding to the 3rd Infantry Division. The system is currently being fielded to the 101st and 10th Divisions and is aligned with the Army Campaign Plan for future fieldings. CSS-SATCOM was designated a formal program in the 1QFY05 under the auspices of PEO EIS. Formal program management constructs will be developed in FY05.

Advanced Aviation Forward Area Refueling System (AAFARS)

Description. AAFARS M100A1 is a modular, four-point refueling system. The principal components are engine, pump, filter and control modules, along with hoses, nozzles, couplings, defueling pump, fuel blivets (500-gallon drums), fire-suppression equipment, fuel spill containment berms, nozzles and fuel test kit. The AAFARS is transported

inter-theater in three specialized shipping containers.

Program Status. Fielding began in Oct 04.

Tactical Electric Power (TEP)

Description. TEPs are all-mobile, engine-driven, electric power generating sources, 750 kW and smaller, which are skid-mounted, wheel-mounted or man-portable. TEPs are capable of independently producing electric power when operating on diesel, gasoline or other fuel sources. Included are follow-on power sources such as fuel cells and thermoelectric devices. These mobile, tactical generators provide quality power to operate DOD systems away from a fixed power grid and are found in nearly every organization in the Army. They directly support all field electrical systems such as C4ISR, medical, maintenance, fire direction and controls, target acquisition, life support, sustainment and illumination. These functions are critical to mission accomplishment across the entire spectrum of military operations.

Program Status. TEP Tactical Quiet Generators (TQGs) are currently in production and being fielding. The next generation of TEP generators, the Advanced Medium Mobile Power Sources (AMMPS), reached Milestone B in Nov 03 and begins production in FY08. To date, half of the older MILSTD generators have been replaced by TQGs and over 30,000 remain to be replaced by TQGs and/or AMMPS.

Standard Automotive Tool Set (SATS)

Description. Modular, flexible and standardized, SATS replaces multiple field-level shop sets with a single, consolidated base tool set augmented with packages that are tailorable to unit mission requirements and

organizational design. SATS consists of a set of professional-grade tools with lifetime warranties, physical security, protection from the elements, and rapid tool identification for improved accountability and inventory as well as deployability. The design and storage method of SATS facilitate rapid inventory and enable the operator to verify within two hours or less that all items are present and secured in their designated storage locations. The most significant advantage gained through use of SATS is its impact on the logistics footprint; through standardization and modernization, SATS reduces the tool load weight by 18,000 pounds in the forward maintenance company (FMC) of the SBCT, eliminating the need for four tactical wheeled vehicles and trailers. The same tool weight savings is realized in both the forward support company (FSC) and brigade support company (BSC) in the FXXI Division design along with a reduction of five tactical wheeled vehicles and trailers in each company.

Program Status. SATS begins LRIP in FY05 and full production in FY06 with FUE scheduled in FY05.

Family of Medium Tactical Vehicles (FMTV)



Description. The FMTV is built around a common chassis and drive train, featuring over 80 percent commonality of parts and components between models and weight classes. Operating worldwide in all weather

and terrain conditions, the FMTV provides unit mobility, resupply and transportation at all organizational levels. It serves as the weapon systems platform for HIMARS and the support vehicle for Patriot. FMTV enhances crew survivability through the use of hardened cabs, three-point seat belts, central tire inflation, and machine gun ring-mount capability. It provides enhanced tactical mobility and is strategically deployable in C-5, C-17, C-130 and C-141 aircraft. FMTV reduces the Army's logistics footprint by providing commonality of parts and components, reducing maintenance downtime, and lowering operation and support costs that older trucks require.

Program Status. FMTV is in full production with over 18,500 trucks and 1,450 trailers fielded as of Oct 03. A competitive multi-year contract was awarded in Apr 03 to the current producer, Stewart and Stevenson, adding new models that include an expansible van, 10-ton dump, and 8.8-ton Load Handling System (LHS) truck and companion trailer compatible with flat racks, container roll-in/roll-out platform (CROPs), and International Standardization Organization (ISO) shelters/containers. The HIMARS launcher chassis production build began in Oct 03.

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Description. The HMMWV is a light, highly mobile, diesel-powered, four-wheel-drive vehicle that uses a common chassis. Using common components and kits, it can be configured as a troop carrier, armament carrier, shelter carrier, ambulance and TOW missile carrier. It is a tri-Service program that also provides vehicles that satisfy USMC, USN, USAF and foreign military sales (FMS) requirements. The Up-Armored HMMWV is a key asset in the ongoing security and stabilization operations in OEF and OIF with its



increased ballistic (up to 7.62 mm NATO AP) and blast protection (12-pound mine, front; 4-pound mine, rear).

Program Status. In full production since FY85, current full production includes the HMMWV A2 (USMC and FMS only) expanded-capacity variants (M1151/M1152) and the up-armored variants (M1114). HMMWVs are being fielded to MP units (M1114), data interchange customers (M1151/M1152), SBCTs and other select units.

Heavy Expanded Mobility Tactical Truck (HEMTT)



Description. The HEMTT family of vehicles provides all-weather, rapidly deployable transport capabilities for resupply of combat vehicles and weapon systems. There are six basic configurations of the HEMTT series trucks: M977 cargo truck with Material Handling Crane (MHC), M978 2,500-gallon fuel tanker, M984 wrecker, M983 tractor, the M1120 HEMTT-LHSs and M985 cargo truck with MHC. A self-recovery winch is also avail-

able on certain models. HEMTT-LHS provides the Soldier with an efficient and economic system with capabilities that cannot be replicated in the light and medium truck fleets. The HEMTT family of vehicles is designated as an FCS-complementary system and is a key enabler to achieving a distribution-based logistics system.

Program Status. All variants of the HEMTT are currently in production. The FY06-11 fielding schedule includes SBCTs 4-6, ADRS units, and air defense units (Patriot and THADD).

Palletized Load System (PLS)



Description. The PLS is composed of a prime mover truck with integral self-loading and unloading transport capability, a 16.5-ton payload trailer, and demountable cargo beds (flat racks). The vehicle can also be equipped with materiel-handling equipment and/or a winch. PLS is a key transportation component of the ammunition distribution system and provides long-range hauling, local hauling and unit resupply of ammunition. The PLS is capable of transporting multiple configurations of cargo utilizing a variety of flat racks. The M1077 and M1077A1 are sideless flat racks used to transport pallets of ammunition and other classes of supplies. The M1 flat rack carries identical classes of supplies. It is ISO/CSC certified and is suitable for intermodal transport, including transport on container ships. Ammunition can be

loaded on the M1 at depots, transported via container ship to theater, picked up by the PLS truck and carried forward without the use of any materiel handling equipment. The PLS provides the Soldier with an efficient and economical system with capabilities similar to that of HEMTT-LHS, and is a major enabler in the Army's drive to achieve a distribution-based logistics system.

Program Status. The PLS is currently in production. The FY06-11 fielding schedule includes AC and RC engineer mission modules, APS and OIF combat loss replacements.

Containerized Kitchen (CK)

Description. The Containerized Kitchen (CK) integrates standard and commercial kitchen equipment into an expandable 8'x8'x20' ISO container. The CK has onboard refrigeration and uses the improved modern burner unit. The CK has a running water system and the interior is environmentally controlled. The CK can feed three meals a day to 800 Soldiers. Its efficiencies over the Mobile Kitchen Trailers (MKTs) include overall decreased footprint and manpower requirements.

Program Status. The CK has been in continuous production since FY02. Over 200 systems have been produced and fielded and a new contract award is scheduled for the 2QFY05.

Unit Water Pod System (Camel)

Description. The Camel system contains a 900-gallon storage capacity, heater/chiller unit, government-furnished M1095 (5-ton) medium tactical vehicle (MTV) trailer, and contractor-developed components mounted on or carried by the trailer. It will provide a maneuver company operating in a temperate environment 2+ days of supply of water at a

minimum sustaining consumption rate. It will have provisions for at least six retail dispensing points, and be fully capable of stand-alone operation. Camel will be capable of transporting both full and partial loads of water in accordance with approved OMS/MP standards by C-130 and larger aircraft, external lift helicopter, and low-velocity air droppable means. Camel replaces the M107, M149, and M1112 series water trailers.

Program Status. The Camel ORD was approved in Mar 02. The Camel contract was awarded in Aug 03. The design and build of four prototypes for production qualification testing (PQT) is projected for Dec 04 through Apr 05.

Load Handling System (LHS) Compatible Water Tank Rack System (Hippo)

Description. The Hippo consists of a 2,000-gallon, ISO-framed, potable water tank rack. The Hippo has an organic 125-GPM water pump, filling stand, 70-foot hose reel for both bulk suction and discharge and retail distribution. The Hippo will enhance water distribution by providing one system that enables both hardwall bulk water transportation and unit retail water support. It will allow for water transport directly from water purification points to supported maneuver elements and can be used as a water distribution point.

Program Status. All testing is complete. Milestone C FRP decision is expected in Jan 05. Fielding of the Hippo will begin following Milestone C decision.

Load Handling System Modular Fuel Farm (LMFF)

Description. The LMFF provides the ability to rapidly establish a fuel distribution and storage capability at any location regardless of the

availability of construction equipment or materiel handling equipment. The LMFF consists of 2,500-gallon, ISO-framed fuel tank racks and 400-GPM, ISO-framed pumping modules. The pumping module will have a pump, engine, fuel/water separator, control panel, hoses, nozzles and other support equipment. The 35,000-gallon-capacity LMFF consists of 14 tank racks and two pumping modules. The 45,000-gallon-capacity LMFF consists of 18 tank racks and two pumping modules. The LMFF is compatible with the PLS and the HEMTT-LHS, allowing these systems to recover the tank racks and pumping modules, transport them to the new location, and emplace the system.

Program Status. ORD approved at the Department of the Army. Production verification test occurred in 4QFY04 and FUE in FY06. SBCTs will be the first units to be fielded the LMFF. Milestone C decision package is being prepared for approval, which will include the deletion of an 18-rack system and the creation of a line item number for a single storage tank rack.

1,500-GPH Tactical Water Purification System (TWPS)

Description. The TWPS is a mobile water purification system capable of purifying, storing and dispensing water, meeting tri-Service field water quality standards for long-term consumption. Once emplaced, the system is intended to supply potable water, from a broad range of source waters, to ground, amphibious and air-mobile units of the U.S. Army and Marine Corps. It can also be used to provide potable water support to civilian agencies or host nations for emergencies, disaster relief, humanitarian efforts and peacekeeping missions. TWPS can purify up to 1,500 gallons of water per hour from any water source, including 60,000 total dissolved solids, salt water

and NBC contaminated sources. TWPS provides water support for division and brigade ground units operating in remote areas. It will be mounted on an LHS- or PLS-compatible flat rack and can be transported on a C-130 fixed-wing aircraft. Fielding may be delayed for units without LHS or PLS, pending availability of required LHS or PLS systems from production.

Program Status. Scheduled for 3QFY05 fielding.

Rapidly Installed Fluid Transfer System (RIFTS)

Description. RIFTS is a petroleum distribution system capable of rapidly deploying to distribute 875,000 gallons of fuel in a 24-hour day. Rapidly installed hose lines provides the ability to rapidly transfer fluid while decreasing traffic on main supply routes. RIFTS provides fuel distribution that is 10 times faster than the current Inland Petroleum Distribution System (IPDS). Procurement of RIFTS is conducted in two blocks. Block I includes development of the conduit (hoses), Employment Retrieval System (ERD) and auxiliary equipment. Block II includes the Automated Pump Stations (APS), Command and Control Module (C2M) with leak detection, computer-based planning aid and all auxiliary equipment.

Program Status. Block I production qualification testing/reliability is scheduled from Jun to Oct 05. Block I Milestone C is scheduled for Jan 06 and the FRP contract award is scheduled for Mar 06. Block II Milestone B and contract award dates are projected for 1QFY06.

Container/Material Handling Equipment (C/MHE)

Description. C/MHE includes all container and material handling equipment required to support the deployment of unit equipment and the distribution of sustainment items. The primary tactical C/MHE includes the Rough Terrain Container Handler (RTCH), the All Terrain Lifter Army System (ATLAS), and the 4K Rough Terrain Forklift (4K RTFL). The RTCH is the primary capability for handling 20- and 40-foot long containers weighing up to 53,000 pounds. The RTCH is deployable by air, operates on all types of terrain, and is capable of stacking containers up to three high. The ATLAS has a 10,000-pound capacity and is capable of handling fully loaded 463L Air Force pallets, has a variable reach boom for removing items from 20-foot containers, and is capable of deploying by air. The 4K RTFL is capable of entering containers to remove items. The 4K RTFL fleet is reaching the end of its economical useful life and requires replacement. The Army Node Transloader (ANT) is being investigated as a possible replacement for the 4K RTFL. The ANT concept is based on the commercial materiel handling forklifts that are transported on the distribution platform, eliminating the need for secondary transportation for the forklift. This approach provides a distribution capability that has never existed, creating new options for the distribution of sustainment items.

Program Status. The RTCH program was terminated in FY04 with 342 of 463 AAO total systems fielded. The ATLAS initial production contract ends in FY05. A Milestone C is scheduled in FY05 for ATLAS with a follow-on production contract for an upgraded model beginning in FY07. The ANT will complete a user demonstration in FY05. A requirements document to support procurement of the ANT

will be generated using the results of the user demonstration in FY05.

Maintenance Support Device (MSD)

Description. Formerly the Soldier Portable On-System Repair Tool (SPORT), the MSD is a lightweight, rugged, portable tester employed at all levels of maintenance. It is the Army's standard system tester used to automatically diagnose weapon system operations, both electronic and automotive, and identify faulty components for immediate replacement. The MSD and its predecessor, the SPORT, are in wide use throughout the Army's ground combat and CSS vehicle fleets as well as in the Army aviation fleet.

Program Status. The MSD is currently in FRP and fielding. A recent change in the basis of issue will provide the MSD to organizational level maintainers at a ratio of 1:3 per maintainer occupational skill.

Medical Communications for Combat Casualty Care (MC4) System

Description. The MC4 system is a theater, automated combat health support (CHS) system that links commanders, health care providers and medical support providers at all echelons with seamless, integrated medical information. It will receive, store, process, transmit and report medical C2, medical surveillance, casualty movement/tracking, medical treatment, medical situational awareness, and medical logistics data across all levels of care. The MC4 system is fully operational with standard Army systems and operates on standard commercial hardware. The MC4 system is fully joint operations compatible and operates from a family of joint software. The MC4 system supports the commander with a streamlined personnel deployment system using digital medical information.

Program Status. MC4 has an approved ORD. The program is currently scheduled for a Milestone C decision in 1QFY04 and a FRP decision in 3QFY04.

Man-Transportable Robotic System (MTRS)

Description. The MTRS provides a two-person, portable, lightweight robotic system capable of being helicopter transported, to give EOD Soldiers remote reconnaissance capability in situations where current robotics are too large to employ. Current operations have shown a need for smaller, portable, robotic systems. Lack of this capability requires EOD Soldiers to physically approach explosive devices and manually perform reconnaissance and render safe procedures in confined spaces. Requirements for additional MTRS were initiated and validated in response to the increased threat and sophistication of potential threats.

Program Status. The new MTRS AAO of 461 incorporates additional requirements resulting from lessons learned in OIF and OEF. These requirements are included in the program plan from through FY10.

Forward Repair System (FRS)



Description. The FRS is a high-mobility forward maintenance system that reduces repair

cycle time. In one package, the FRS places proven tools, test equipment and heavy lift capability to support forces in forward battle areas. The FRS includes the prime mover, as well as a maintenance enclosure with a 35 kW generator, crane, welding equipment, industrial-quality power air and hand tools, air compressor and tool cabinets, and accepts FBCB2 and MTS connectivity. The FRS meets a maneuver commander's need for a repair system that is responsive and effective, and reduces the number of systems requiring evacuation.

Program Status. The FRS is in production and fielding. The first units fielded are III Corps, BCTs undergoing modular conversion, and SBCTs.

Focused Logistics (FL) Summary

Sustainment of forces, in any environment, is critical to successful mission accomplishment. This appendix focused on the lift equipment modernization programs for assured mobility and sustainment systems. More important than materiel programs, however, is the entire redesign of the Army's force to a Future Force design and the accompanying logistics transformation effort addressed in the main body of this *2005 Army Modernization Plan*. This new design will greatly enhance the Army's ability to rapidly deploy and successfully carry out missions across the full spectrum of operations.

As the Army continues to transform itself into a Future Force design, the specific requirements needed to enhance mobility and sustainability will become clearer. The current plan funds those programs with proven potential for the Future Force while enhancing the capabilities and readiness of the Current Force.

Appendix 4: Battlespace Awareness (BA)

Battlespace awareness (BA) is the ability to sense and understand the operational environment with its mix of friendly "blue" forces, enemy "red" forces and nonaligned actors/noncombatants, as well as terrain and weather aspects that can aid or hinder friendly force operations. BA relies on the continuous collection, processing, fusion, analysis and modeling of data from a large mix of highly responsive sensors (e.g., unattended, human, intrusive and remote) to provide the commander and his force elements with near real-time, collaborated, tailored, actionable battlespace information. Enhancing BA capabilities provides the commander with more confidence in his understanding of the operational environment and the associated operational risks. This translates to better and faster decision making in the planning and execution of operations. BA is the key to increasing the reach, persistence and agility of our military capabilities while increasing the range of military options available.

Observation and information collection occurs throughout the battlespace from traditional ISR sensors and collectors, such as satellite constellations, airborne and proximate sensors, human intelligence (HUMINT), sensors specifically designed to support weapons systems (e.g., Firefinder), to nontraditional sources, such as commercial and open sources. Each of these entities represents a node in the BA grid. Nodes provide data and information to the grid and draw information as required from the grid. Nodes range from every Soldier in the field as a potential sensor to the future space-based radar, as a primary provider of an extremely fine-grained depiction of the battlespace. Through these nodes, intelligence on current and future

activities in the operational environment and updated baseline environmental information is collected, fused, analyzed and presented to create a comprehensive battlespace picture. Baseline environmental data includes information on the weather, cloud cover, vertical temperature profile, humidity, wind, precipitation, soil moisture, ice cover, sea ice, electron density profile, vegetation, terrain, infrastructure, resources (e.g., water, energy sources, building materials), transient infrared sources, second-order effects like trafficability and sensor field of view; and significant social aspects such as the cultural, religious, economic, political and security situation. By utilizing the collection capability of all possible nodes, the reach, robustness and persistence of the entire sensing network are greatly enhanced to create a pervasive, detailed understanding of the battlespace.

One significant area of joint development that supports enhanced BA capabilities is space. Space is the backbone for the national and military ISR architecture and the domain of choice for commercial broad-area sensing enterprises with military utility. Space-based communications provide reach and NLOS connectivity while space-based ISR and commercial imagery platforms substantially enhance strategic, operational and tactical intelligence collection, processing and dissemination. Soldiers in OEF and OIF use space-based systems to communicate, navigate, target, find and fix the enemy, anticipate weather, receive missile warning, avoid fratricide and much more.

The Tactical Exploitation System (TES) embedded in the corps and division force structures is providing vital space-based imagery, signals intelligence (SIGINT), BFT and communications reach for OIF. The Army is currently developing the Distributed Common Ground System-Army (DCGS-A), as part of

the DOD DCGS family of systems concept, to incorporate ISR data and information from all sensors and analytic centers, regardless of the source. It will provide the red and gray weather and environment portions of the COP to commanders and decision makers down to the individual Soldier.

The shared visibility between operations and intelligence provides the venue to predict the effects of threat actions and changes in the operational environment as well as assess potential courses of actions against the threat operations. Decision making and forecasting tools will continuously evaluate changes in environmental data to identify potential impacts on ongoing operations and alert the relevant decision authority to the perturbation. Predictive analysis and modeling will allow potential courses of action to be evaluated with a better understanding of the potential impacts on the operational environment. The simultaneous current and forecasted depictions of the battlespace, coupled with the responsiveness of sensors, will allow commanders to quickly evaluate sensor mission utility and retask multiple sensors to react to emerging operational situations.

Current and projected operational information will be continuously fused by robust knowledge management systems and disseminated to all levels of users through adaptable, flexible, networked communications systems. Within this “producer interactive network,” force elements will subscribe to products or data (including archival data). Software agents will broker data and products, posting some unprocessed information. In this manner, all joint, allied and coalition warfighters will have access to common data, within security access and transportation layer constraints, to construct their own tailorable, relevant operational pictures. Access to the combat support

agencies' data is key to achieving dominant battlespace awareness.

Below is a brief discussion of some of the key materiel programs supporting BA capabilities.

Discussion of Key Battlespace Awareness Materiel Programs

Distributed Common Ground System-Army (DCGS-A)

Description. DCGS-A is a family of systems and an integral component of the Army's ISR networking strategy. DCGS-A will migrate capabilities of disparate ISR systems into a joint, common, interoperable multi-intelligence architecture to improve the ground commander's ability to act faster than the enemy's decision cycle, or ability to react. DCGS-A software/hardware used throughout the Army and joint environments will task, post, process and use Army, joint, national, interagency and multinational ISR sensor data and information in support of Future Force, joint task force and multinational operations. DCGS-A is an FCS complementary system, providing the threat, weather and terrain data to the UA through its embedded software capabilities. Fixed and mobile DCGS-A transparently operates with embedded DCGS-A software applications within the FCS, operating in a secure collaborative, networked environment. DCGS-A provides real-time, sensor-to-commander, sensor-to-shooter, and sensor-to-analyst information tailored to mission, task and purpose of the recipient.

Program Status. The DCGS-A program will employ an evolutionary acquisition strategy, providing incremental milestone decisions throughout the SDD phase based on validated/approved requirements for DCGS-A capabilities and the DCGS-A capability needs

inherent in other Future Force programs such as the Aerial Common Sensor and the FCS. Milestone B decision is scheduled for 2QFY06 to field an objective capability by 2010. The 525th MI Brigade, XVIII Airborne Corps, demonstrated a DCGS-A capability in FY04.

All Source Analysis System (ASAS)

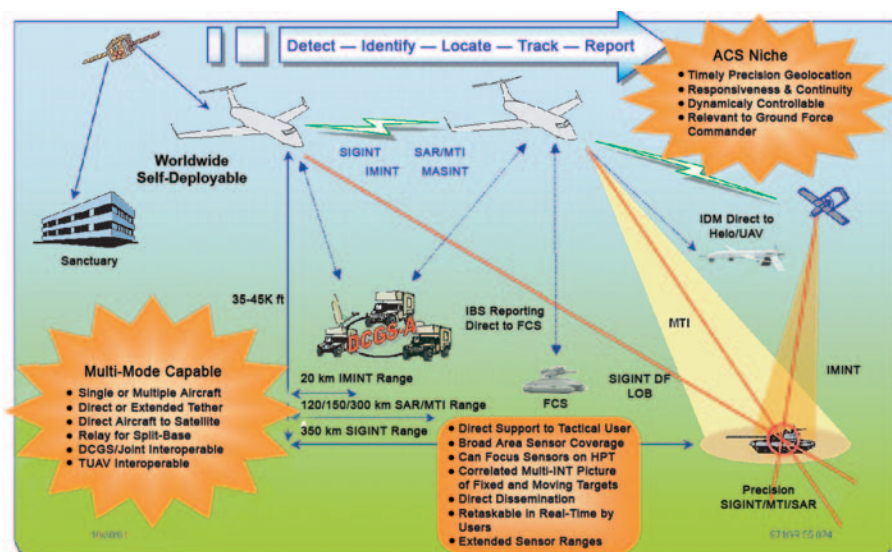


Description. ASAS provides accurate, clear, relevant, timely, and predictive automated actionable intelligence about the current enemy situation. The ASAS sets the environment that the commander and his staff need to plan and execute battles, engagements, and other missions across the full spectrum of operations in both a structured and nonstructured threat environment. ASAS assists the commander in visualizing the battlespace, organizing his forces and controlling operations to achieve the desired tactical objectives or end state. Inherent within ASAS is the capability to plan and direct intelligence, surveillance and reconnaissance operations, produce relevant information and intelligence, and disseminate intelligence and other critical information in an understandable format to those who need it, when they need it.

Program Status. ASAS Block II is in SDD with several components in FRP. The most significant of these is the ASAS Light, the intelligence staff support tool currently being fielded to the force. The ASAS Block II

Analysis and Control Element (ACE) Light is a software component of interim DCGS-A at 525 MI Corps and may become part of DCGS-A software.

Aerial Common Sensor (ACS)



Description. ACS is the Army-led, joint airborne ISR system that meets the Army and Navy's requirements for a worldwide, self-deployable asset that can begin operations immediately upon arrival into theater, in front of, or alongside the Future Force. ACS will support the theater down to the UA commander and will merge the capabilities of Guardrail Common Sensor and Airborne Reconnaissance-Low into a single multifunction platform to provide the requisite networked situational awareness and joint network-centric and deep-strike precision targeting for the future joint force commander. ACS provides distributed, wide-area, persistent surveillance throughout the breadth of the joint operations area battlespace and multi-intelligence precision targeting. Using the DCGS for the ground station component, ACS, via robust sensor-to-shooter and reach links will provide commanders at every echelon with the tailored, multisensor intelligence required for

dominant maneuver, precision engagement, information superiority and decision dominance throughout a nonlinear framework and noncontiguous battlespace. Onboard battle command and communications relay packages will ensure uninterrupted, joint integrated C4I. Through a modular, open architecture,

onboard communication intelligence (COMINT), electronic intelligence (ELINT), imagery intelligence (IMINT) and measurement and signature intelligence (MASINT) sensors incorporating electro-optic (EO), infrared (IR), synthetic aperture radar (SAR), moving target indicator (MTI), multi- and hyperspectral imagery sensors, as well as onboard operators, will ensure sensor/processing technology enhancements maintain

pace with evolving threats via software vice hardware solutions.

Program Status. ACS is in the SDD phase with Milestone C decision scheduled for 4QFY08. FUE will be an aerial exploitation battalion in FY10, with four additional systems fielded at a rate of one every two years.

Advanced Field Artillery Tactical Data System (AFATDS)

Description. AFATDS is the primary fire support system at division and below that provides tactical fire solutions, including weapon-target pairing, mission planning and execution. AFATDS provides the fires COP at each echelon, as well as the technical fire control providing ballistic solutions for cannons and rockets. AFATDS is a true joint system, fully fielded by the USMC, on USN ships and interoperating with the USAF via

the Air Force's theater battle management system (TBMCS). As such, AFATDS provides the capability to identify, track and respond to targets across the entire battlespace, using all fire assets available.

AFATDS also operates at echelon above division levels, providing a strategic and operational picture of the battlefield to meet the commander's top seven priorities. AFATDS provides the friendly picture of the location and status of all friendly fire support (FS) assets; the enemy situation, including tracking all enemy target locations; and a running fire support logistics status (munitions, rounds, and petroleum, oil and lubricants). AFATDS provides graphic control measures, maintaining a complete database of FS geometries and FS coordinating measures (FSCMs), and performing appropriate levels of coordination as required. The AFATDS FS target database and weapon status-tracking feed the commander's situation report. AFATDS management of the FSCM and capability overlays ensure optimal weapon target pairing and strategic attack analysis.

Program Status. AFATDS is currently fielded to 12 USN ships, 100 percent of USMC FS units, over 95 percent of the AC Army FS units and 50 percent of the ARNG FS units. Version 6.3.2 software is currently in use and will be replaced by version 6.4 in 2005. Future improvements will focus on increased joint interoperability, and new weapons and munitions functionality.

Long-Range Advanced Scout Surveillance System (LRAS3)

Description. LRAS3 provides unmatched long-range target acquisition and far target location capabilities to armor and infantry scouts. It consists of Horizontal Technology Integration (HTI) second generation FLIR

(cooled infrared), long-range optics, laser range finder, GPS interferometer, day video camera, and a link to FBCB2 for automated handoff of target locations. As the premier ground scout sensor system, it enables the scouts and cavalry units to conduct RSTA missions while remaining outside of threat acquisition and engagement ranges during all-weather and dirty battlefield conditions (i.e., fog, dust, smoke and sand). LRAS3 is also being integrated with a laser designator module (LDM) as the Fire Support Sensor System (FS3) for the Stryker Fire Support Vehicles and the Knight Fire Support Vehicles.

Program Status. LRAS3 is in FRP, and LRAS3 procurement is funded for AC heavy and light divisions. LRAS3 is being fielded to HMMWV-mounted scouts and is being integrated into the Stryker Reconnaissance Vehicles.

Tactical Exploitation System (TES)

Description. TES is the Army's Tactical Exploitation of National Capabilities (TENCAP) system that receives, processes, exploits and disseminates intelligence data from direct downlinks and other ground stations. The TES family of systems is a key part of the emerging DCGS architecture with TES variants in Army, USN, USMC and limited USAF units. The TES program combines the intelligence functions of four previous stovepiped ISR collection systems into an integrated downsized, open, scalable, modular and network-centric architecture with all elements fully transportable by C-130 aircraft. TES tasks, receives, processes and exploits ELINT, COMINT externals, IMINT and MTI data from selected national, theater, and tactical platform/sensors and generates timely information, intelligence and targeting data. TES also is capable of limited MASINT processing and analysis. TES receives

space-based BFT data and provides it to the GCCS Army. TES has a direct digital/network interface with the AFATDS and Automated Deep Operations Coordination System (ADOCS). TES performs the preprocessor functions for the ASAS, Common Ground Station (CGS) and Digital Topographic Support System (DTSS). Designed for split-base operations, TES supports joint, combined and early-entry operations.

Program Status. TES-Main and TES-Forward systems have been fielded to 18th Airborne Corps, V Corps, III Corps and 513th MI Brigade. Division-TES (DTES—division level assets) will be fielded to all AC divisions by Jan 05. TES-Forward (minus) systems will be fielded to 501st MI Brigade and to I Corps in FY06. Plans to support the USFK Operational Needs Statement for a complete TES-Forward system for the 501st MI Brigade have been curtailed due to funding. Twenty-one TES-Light systems will be fielded to SOF, ACR, Republic of Korea Army and selected brigade-level elements starting in FY05. A number of TES systems were deployed in OEF and OIF and judged in after-action reports as being very supportive of high-OPTEMPO, ISR and dynamic targeting demands. TES systems were the primary interface for missile launch notifications within the corps and divisions. Although the draft DCGS-A roadmap contains TES-Forward configuration items, TES or an equivalent capability has yet to be integrated into the modernization plans of the objective ISR architecture. TES systems will be in the force structure until the objective DCGS-A system is fully fielded, sometime after 2015.

Integrated Meteorological System (IMETS)

Description. IMETS supports the Current Force, including aviation, SOF and SBCTs. It will migrate through spiral development to

DCGS-A in the Future Force in 2008. IMETS ingests local aviation surface weather and artillery upper observations, weather satellite data, and observations from unattended, automated observing equipment. IMETS receives transmissions of centrally prepared USAF forecast products. IMETS uses Army weather effects software linked to current and forecast data to determine weather effects on friendly and enemy personnel, equipment and operations. IMETS provides tailored weather forecasts and space weather impacts for planners and operations, including chemical defense. Weather effects are linked to users within each supported tactical operations center (TOC) by direct machine-to-machine interface, enabling users to interact with the database to determine details on adverse weather effects. IMETS is the gateway and communications interface to support major subordinate commands and warfighters without direct weather support.

Program Status. IMETS is primarily an NDI, which will have three separate, distinct configurations: the vehicle-mounted; the command post (CP), and the light. The vehicle-mounted and light configurations are in FRP. The IMETS objective software applications underwent testing in 4QFY04 with fielding to be initiated in FY05. This is the hardware and software baseline that will support ABCS 6.4 and provide the bridge until DCGS-A and FCS integrate the capabilities.

Prophet

Description. Prophet provides a near real-time view of the brigade/ACR/SBCT/UA area of operations through the use of COMINT sensors, and includes the capability



to detect, identify and electronically attack select enemy emitters. It is a dedicated, dynamically retaskable asset, allowing the tactical commander to visually depict and understand his battlespace, now and in the future. It provides expanded frequency and area coverage for situational development and awareness, as well as force protection operations. Prophet can operate on-the-move, mounted on a HMMWV, or stationary in a mounted or dismounted configuration. It has an open architecture that supports programmed improvements and mission-specific technical insertion components. This makes Prophet relevant throughout the entire spectrum of operations. Prophet has been an invaluable and critical collection asset in the global war on terrorism.

Program Status. Prophet Block I began fielding in Nov 02. In fact, Prophet Block I was fielded to all deploying forces in support of the global war on terrorism. Prophet Blocks II/III went into the SDD phase in Mar 03 with an FUE of 4QFY05.

Tactical Unmanned Aerial Vehicle (TUAV) Shadow 200



Description. The RQ-7A Shadow 200 TUAV provides the maneuver commander with a near real-time, highly accurate, sustainable capability for over-the-horizon RSTA, and Battle Damage Assessment (BDA). Each Shadow 200 TUAV system consists of four Shadow 200 air vehicles, six HMMWVs, two Ground Control Stations (GCS), one portable GCS, and four remote video terminals that can provide near real-time video to commanders on the ground. The Shadow 200 TUAV currently has an onboard EO/IR sensor payload. Objective payloads may include but are not limited to advanced EO/IR, all-weather SAR and MTI, and SIGINT sensors. The threshold

		FY04	FY05	FY06	FY07	FY08	FY09	FY10
TUAV Fielding	Oct					116 HVY		50 IN 149 IN
	Nov			SBCT5		256 HVY	86 IN	2 IN
Previously Fielded	Dec							
	Jan					278 ACR (HVY) 56 IN	3 IN	53 IN 2 IN
Tng Base (4)	Feb					155 HVY		45 IN 92 IN
	Mar					1 HVY		
(2)	Apr					48 HVY		
	May				30 HVY	41 IN		FY11 32 29 1 3 26 IN IN IN IN IN
SBCT1 (1)	Jun	SBCT6 29 ID				218 HVY		76 66 207 IN IN IN
SBCT2 (1)	Jul	SBCT3 In NET (In NET)	NG Trng System		81 HVY	37 IN		
(2)	Aug	(In NET)				55 HVY 2 IN		FY12
(2)	Sep				39 IN	49 IN		

As of 15-Nov-04

Figure D-9. Critical Sensors Fielding Schedule

range is 50 km with an objective range of 200 km and an on-station endurance of four hours. The threshold payload is 60 pounds with an objective capacity of 100 pounds. OPTEMPO requires a threshold of 12 hours per 24-hour period and an objective of 18 hours per 24-hour period.

Program Status. TUAV IOT&E was completed in May 02 followed by a Milestone III FRP decision in Sep 02. FUE was 3/2 IN SBCT in May 02 and IOC was achieved in Oct 02. Production and fielding continues under the FY06-11 program plan. The TUAV is currently supporting the global war on terrorism. The TUAV program was revalidated by JROC in 2004.

Counterintelligence/Human Intelligence Information Management System (CHIMS)

Description. CHIMS provides counterintelligence (CI) investigator/interrogator and HUMINT agent/Soldiers with automation support for the collection, analysis, production and dissemination of HUMINT and CI data/information. CHIMS provides the Army commanders at all echelons down to the BCT with automation for the collection management, analysis and production of CI and HUMINT data into actionable intelligence. It is designed to support the commander's ability to anticipate and react to a wide range of force protection threats and situations. The system is message and reporting interoperable with the Army ASAS at the tactical level with planned enhancements to be interoperable with the Portico program and the Defense Counterintelligence Information System (DCIIS) at the strategic level. The Biometric Automated Tool (BAT) system that has evolved out of OIF and OEF has been integrated into the CHIMS software to capture and store fingerprints, facial recognition and

iris scan algorithms for HUMINT data fusion and correlation of detainee, employee and refugee tracking during stability and support operations (SASO). CHIMS also provides the capability of document exploitation (DOCEX) for the screening/triage in over 40 languages with planned Arabic-to-English audio and visual look up enhancements.

Program Status. CHIMS is a spiral development effort with Version 4.2 currently in FRP with all procurement in direct support of OEF and OIF. The software in the SDD phase is planned for integration into the DCGS-A Spiral Four initiative and should start production in FY06.

Battlespace Awareness (BA) Summary

BA supports and is supported by the other functional concepts. BA enables JC2, force application and force protection to bring combat power to bear at critical points, avoid enemy denial and deception, breakthrough or circumvent anti-access and area-denial strategies, and thwart enemy attempts to harm U.S. interests worldwide.

BA capabilities strive to achieve superior situational understanding of the threat and battlespace; decision superiority using precision actionable intelligence to achieve desired effects rather than physical destruction alone; integration of multifunctional tactical and national intelligence sensors and sources; precision targeting and armed aerial reconnaissance; and denial of enemy access to friendly information.

Recent operations have shown the value of space-based, airborne and ground C4 and ISR systems that are networked with manned ground systems to achieve Joint Force BA capabilities. The Army is developing organizations and fielding equipment to capitalize on

this operational experience in today's Current Force as well as in the building of tomorrow's Future Force with future Joint Force BA capabilities.

Appendix 5: Command and Control (C2)

C2 is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. To accomplish this effectively, the commander fuses battlespace information with information on force locations and capabilities, as well as other information relevant to mission planning, into a COP. The commander develops alternative plans of action, selects a course of action and directs force employment exercising C2. This can be either a deliberate process in preparation for a campaign or battle, or a hasty process in response to battlefield opportunities or challenges. Key elements of C2 are a decentralized, networked and collaborative communications and computer environment that provides the precision guidance and timing capabilities that collectively support accelerated decision-making processes throughout the Joint Force. The synergy of this collaborative environment with the COP allows subordinate commanders to self-synchronize their activities, based on knowledge of the commander's intent and of the current situation in battlespace, and to execute actions seamlessly, with minimal or no requirements for deconfliction or coordination.

Army C2 is a critical enabler for and a fully interoperable component of JC2. Army C2 consists of Army battle command (cognitive and technical aspects) and the Army network component of the GIG. The joint concepts for JC2 and Army battle command concepts are complementary and commander-cen-

tric. Both are focused on achieving better situational understanding and decision dominance.

Battle Command

The Army views battle command, the art and science of applying military leadership and decision making, as the essential capability that enables the conduct of current and future joint operations. Enabled by C4 and ISR, battle command enhances the commander's ability to gain information and decision-making advantages over any adversary. Further, C4 and ISR networks within the GIG will provide an inherently joint, top-down network that provides common situational awareness to improve battle command. Army battle command modernization efforts are designed to bridge the Current Force to the Future Force, enable network-centric warfare, and allow the operational and tactical commander to see first, understand first, act first, and finish decisively with unprecedented situational understanding and decision superiority.

One recent initiative to enhance Current Force capabilities is termed "good enough" battle command. This initiative reviewed current operational requirements in order to resource current combatant commander's needs with a baseline command post capability as a first step in bringing these capabilities to the Current Force. This capabilities-based baseline uses existing resources in the ABCS program to standardize software in 2004, ensure joint interoperability of essential capabilities, and distribute this capability across the Current Force by FY07. This initiative is part of an overall "Army Battle Command Way Ahead" strategy that develops a single standardized battle command system that incorporates operational lessons, the requirement for Joint Battle Management Command and Control (JBMC2), and emerging joint requirements.

The Network

Concepts for network-centric warfare, full-spectrum dominance, and decision superiority are driving C2 modernization efforts for the Army's Future Force and the Joint Force. These concepts require a robust, modular, deployable, and always capable network that provides universal access to all relevant authorities, assets and capabilities. This network consists of integrated information systems, supporting information infrastructure and a knowledge-based force of individuals located across the entire spectrum of the battlefield from the Soldier on point, through a variety of operations and support centers in theater, to home station operations and support centers located worldwide. To achieve this level of networking, the focus is being shifted from a bottom-up to a top-down approach that develops integrated C2 network architectures designed to support battle command capabilities for the Current and Future Forces in the JIM, full-spectrum operational environment. The Army is currently identifying baseline network capabilities for the JIM environment and will use a single Army lead for network development to enhance the Current Force and accelerate network development for the Future Force.

Below is a discussion of key Army C2 materiel programs that support JC2 and development of a COP.

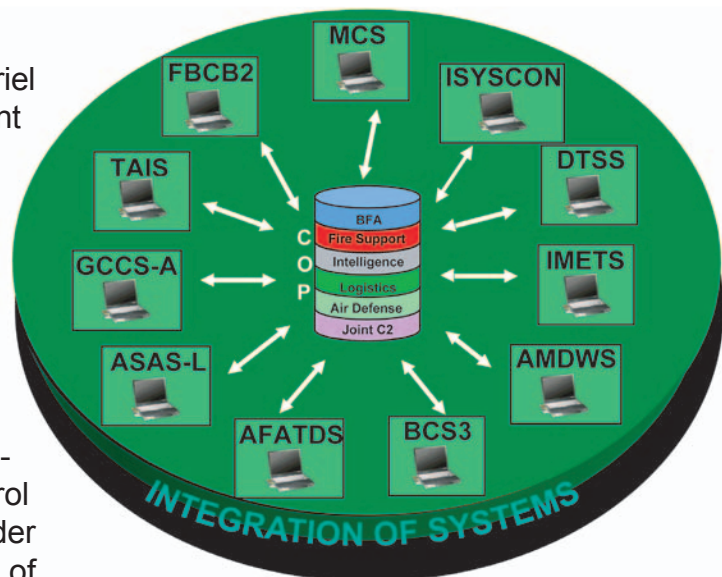
Discussion of Key Command and Control Materiel Programs

Army Battle Command System (ABCS)

Description. ABCS is the Army's component of the Global Command and Control System (GCCS) and combatant commander deployment C2. It is a complex system of

systems that receives and transmits information among the Joint Force. ABCS consists of subsystem software that provides specific support for the Battlefield Functional Areas, including Global Command and Control System-Army (GCCS-A), Maneuver Control System (MCS), Air and Missile Defense Workstation (AMDWS), Force XXI Battle Command, Brigade and Below (FBCB2), All Source Analysis System-Light (ASAS-L), Advanced Field Artillery Tactical Data System (AFATDS), Integrated Meteorological System (IMETS), Digital Topographic Support System (DTSS), Battle Command Sustainment Support System (BCS3), Integrated Systems Control (ISYSCON) and Tactical Airspace Integrated System (TAIS). Additionally, common software products enable information sharing with other systems and provide situational awareness of the battlefield to every echelon.

Program Status. The Army has reassessed the ABCS software and will conduct an operational test and evaluation (OT&E) for ABCS 6.4 in 2QFY05. The new baseline software will be used on all ABCS systems. 6.4 will maintain a joint interoperability with other Services at the division level and



above, while still providing the COP at division and brigade levels within Services. The test will also assess the current distribution and sustainment strategy to see what initiatives can take place in order to further promote ABCS interoperability across the Army and within the Joint Force structure.

Global Command and Control System-Army (GCCS-A)

Description. GCCS-A is a computer-based strategic C2 system that provides readiness reporting, mobilization and deployment of AC and RC forces. It also provides detailed information on intra-theater planning and movement, the joint interface between JC2 systems, and the Army ABCS components. GCCS-A provides joint COP information to Army users and provides Army forces information to the joint COP. GCCS-A is a seamless Army extension to the joint GCCS at echelons above corps through modular BCT levels. GCCS uses a common open systems hardware architecture that has a combination of government and COTS hardware and software. The GCCS-A is an integral component of the GCCS family of systems (FoS), a networked system of information systems to facilitate joint command and control.

Program Status. GCCS-A is a fielded system within the ABCS. GCCS-A upgrades are based on operational needs and technical interoperability requirements with joint GCCS, DII COE and ABCS. GCCS-A, along with the other GCCS FoS, is mandated to migrate to a net-centric C2 capability; the current program in development to accomplish this direction is the DOD JC2 capability initiative. The JC2 capability program is projected to begin fielding the new net-centric capabilities, integrated with the GIG Net-Centric Enterprise

Services (NCES), during Block 1 execution in FY06-07.

Mounted Battle Command on the Move (MBCOTM)

Description. MBCOTM provides the maneuver commander and his staff with a highly mobile, self-contained and reliable combat vehicle-based digital command post. The MBCOTM mission equipment platform consists of a suite of communications and digital equipment/software integrated on a combat platform to enable commanders to influence the battle while maneuvering across the battlefield. The MBCOTM provides situational awareness and a COP, which allows the commander to maintain situational understanding while moving and physically separated from a fixed command post. Future plans include variants for the HMMWV, the Bradley Fighting Vehicle and the Stryker.

Program Status. Program is currently funded for RDTE in the FY06 budget.

Maneuver Control System (MCS)



Description. MCS is an automated C2 system that provides a network of computer terminals to process combat information for battle staffs. This is the proponent system for

the common picture (integrates information horizontally and vertically to provide friendly and enemy unit locations). It provides automated assistance in the collection, storage, review and display of information to support the commander's decision process. Both text and map graphics are provided to the user.

Program Status. The Army is preparing a test strategy in accordance with the ABCS "Way Ahead" strategy. The IOT&E for MCS is scheduled for 2QFY05 as part of a new Army test strategy.

Army Airborne Command and Control System (A2C2S)

Description. A2C2S is the Army's above-the-ground battle command platform that provides the commander with an airborne, self-contained and reliable integrated digital command post that transforms the Army from the Current Force to Future Force. The A2C2S integrated on a UH-60L aerial platform enables the commander and his staff to traverse the battlespace while maintaining situational understanding through C4I connectivity at the decisive point on the battlefield at critical times. It provides a LOS and BLOS voice and digital communications package. This system is fielded to UAs through UEs for OIF. Future plans include variants for the UH-60M aerial platform.

Program Status. The program is currently producing LRIP aircraft platforms for FY05. Unit training is ongoing with existing aircraft fielded in 4QFY04 to support the operations in OIF. Other resources are being funded to support the installation of INMARSAT onto the initial LRIP and current assets.

Air and Missile Defense Command and Control System (AMDCCS)



Description. AMDCCS provides both C2 and a sensor-to-shooter link for AMD operations. It consists of two components: the Forward Area Air Defense Command and Control (FAAD C2) and the Air and Missile Defense Planning and Control System (AMDPCS). AMDCCS fully automates C4 and ISR linkages, integrates AMD sensors, weapons and C3I, and interfaces with ABCS, GCCS and joint and allied C4I. It provides AMD elements and ADA brigades with a fire control system via the air defense system integrator for monitoring and controlling engagement operations by subordinate battalions.

AMDCCS provides a common AMD staff planning and battlespace situational awareness tool via the Air and Missile Defense Workstation (AMDWS), which presents airspace situational understanding to Army commands. This workstation also provides interoperability with JTAMD forces.

Program Status. FAAD C2 is an ACAT II program in procurement with an Aug 95 approved ORD. AMDPCS is an ACAT III program in final development with a May 97 approved ORD currently under revision. The FY06-11 program plan funds both FAAD C2 and AMDPCS to provide AMDCCS to all SBCTs

and III Corps units through the fielding of the ADAM Cells.

Space Support Element Toolkit (SSET)

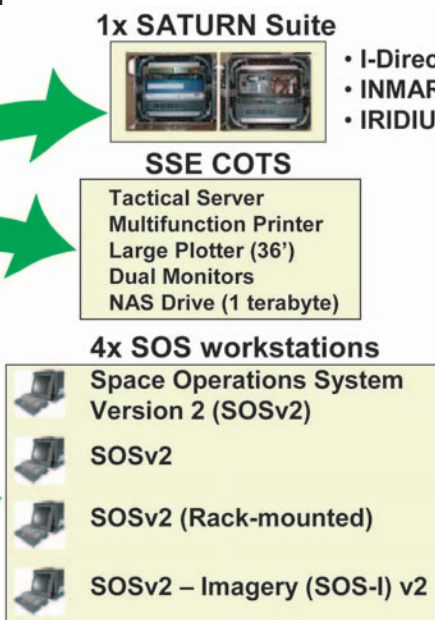
Description. The SSET is a mission essential item of equipment for the Space Support Element (SSE) resident within the UEx headquarters. It provides the nec-



essary capabilities needed by the SSE to conduct space operations planning, integration and coordination. These functions aid in enabling the joint force commander to achieve the precision engagement, information superiority and battle command capabilities across the full spectrum of distributed ground force combat operations through better exploitation of space-based systems, products and services. The SSE approach is part of the space operational architecture supporting Current and Future Force requirements as noted within Army doctrine, *TRADOC PAM 525-3-14, Concept for Space Operations in Support of the Future Force* (updated 31 Dec 03). The SSET is currently a non-type-classified COTS/government off-the-shelf (GOTS) prototype system and has been combat tested in OEF and OIF. Employment during OEF and OIF has demonstrated that the space-based products provided by SSET-equipped teams provided enhanced C2 and situational awareness for land force commanders. It consists

of a communications suite, four workstations and ancillary equipment housed in a rigid-walled shelter v5, mounted on an M1113 HMMWV. Initial UEx design incorporates a six-person SSE equipped with an SSET. This limited placement of personnel and equipment will help further refine space support to the tactical force.

Program Status. The SSET is an emerging requirement that is not funded in the FY06-11 program. It has been developed through the efforts of the SMDC Space Directorate Battle Lab. ASA(ALT) is in the process of aligning SSET responsibility with appropriate PEO/PM, which will type-classify and certify this



item to transition procurement duties to the materiel developer.

Force XXI Battle Command Brigade and Below (FBCB2)

Description. FBCB2 is a joint interoperable, digital, battle command information system for brigade level and below. FBCB2 is designed to provide mounted and dismounted combat elements with near real-time, integrated situational awareness and C2 functionality. FBCB2 enhances the ability of tactical commanders to better synchronize their forces, achieve agility, and gain a “feel” of the battlespace through improved situational awareness and better combat awareness reporting while on the move. FBCB2 is a key component of the ABCS. The FBCB2 operates over both terrestrial communications networks and SATCOM networks; the system con-

sists of a ruggedized computer with a touch screen and keyboard in which the Soldier sees either a digital map or satellite imagery overlaid with icons representing the vehicle's location, other FBCB2/BFT vehicles, known enemy units, and objects such as minefields and bridges. FBCB2/BFT was expeditiously fielded in reduced quantities to every MACOM as well as the USMC and United Kingdom forces participating in OEF and OIF. As a result of lessons learned in OEF and OIF, the Army revised its Army battle command plan to deliver a consistent solution across the force within 18-24 months in order to provide partial "good enough" capabilities over time. FBCB2 requirements were refined to accelerate fielding efforts (OIF-like capability) to the entire Army and 15 eSBs by FY05. In addition,



another 18 eSBs and modular force fieldings have now

been incorporated into the FBCB2

master schedule for execution. After initial fielding efforts are achieved (in FY05), the rest of the key leader option (KLO) distribution efforts will be completed for the AC, six SBCTs, National Guard eSBs and OIF/OEF mission requirements by FY07.

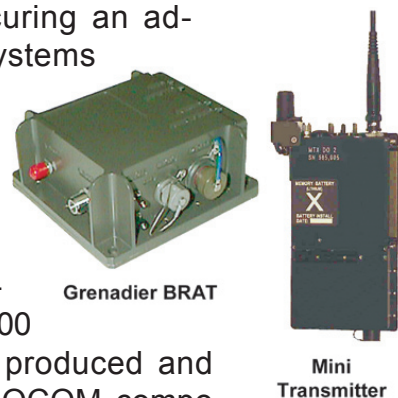
Program Status. FBCB2 is currently funded to continue improvements in joint/coalition interoperability, migration to JTRS, future communications studies, Type 1 encryption efforts, software enhancements and the development of satellite spectrum and Tactical Internet interoperability. The program has reached FRP and continues to procure systems for under the Army Fielding Plan (key leader option) for distribution within the FY06-11 planning period.

Grenadier BRAT (GB) and Mini-Transmitter (MTX) Blue Force Tracking (BFT) Systems

Description. GB and MTX are BFT systems that take advantage of the existing national space infrastructure. They give commanders the ability to track and receive status reports, in near real-time, from friendly forces that require a low probability of intercept/low probability of detection (LPI/LPD) C2 link. GB and MTX systems substantially enhance security and reliability through the use of LPI/LPD Cobra (collection of broadcasts from remote assets) waveforms, encryption certified by the National Security Agency, and military GPS. A space-based BFT Mission Management Center (MMC) supports GB/MTX use of the existing Cobra architecture by coordinating with national system managers and warfighting units to help collect, process and disseminate warfighter BFT data. During OEF and OIF, the GCCS successfully integrated disparate BFT systems used by different units and services. SOF forces used the Cobra-based BFT systems due to the security advantages, while Coalition Forces Land Component Command (CFLCC) main formations used FBCB2. BFT systems gave operational level commanders the most robust COP to date by substantially increasing their situational awareness.

Program Status. Initially fielded 400 GB to USASOC, USAREUR and USARSO. Currently procuring an additional 400 systems for USASOC to support ongoing real-world contingency operations.

There are approximately 3,000 MTX systems produced and fielded to USSOCOM compo-



Grenadier BRAT

Mini Transmitter

nents; e.g., every USAF Special Operations Command airframe and ground team has an MTX. The GB was acquired as a Warfighter Rapid Acquisition Program product, and the MTX and the MMC were developed and fielded as a result of Combat Mission Needs Statements.

Satellite Communications (SATCOM)

Description. SATCOM systems provide a robust, flexible and seamless network capability that extends and in some cases replaces terrestrial capabilities with responsive, BLOS communications throughout the battlefield that permits users to access large databases necessary to support strategic, operational and tactical missions. SATCOM global connectivity supports the command and control capabilities of planning, coordinating, directing and controlling. SATCOM use is essential for the real-time direction of operations at each echelon of command. SATCOM enables tactical forces to exploit improved capabilities to coordinate fires; conduct operational maneuver on the unstructured, asymmetric battlefields of today; assess the effects of previous operations and anticipate enemy actions. An integrated high-capacity SATCOM backbone provides reachback connectivity that allows implementation of split-based command and control and logistics support concepts. This architecture will also support interoperability with joint, coalition, commercial and civil communications networks. As a result, Current and Future Forces will have reliable, on demand, BLOS/NLOS communications for enhanced early warning, en route mission planning and rehearsal, and responsive CSS while maintaining a reduced footprint in theater. Reliable SATCOM enhances increased responsiveness, agility, versatility, survivability and sustainability.

Program Status. The Milstar satellite Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) provides a protected (anti-jam) wideband, BLOS capability for Army modular divisions, BCTs and SBCTs. The program is currently in production and continues to be fielded. The Phoenix, an SHF multiband satellite terminal, HMMWV-mounted, air-transportable system was awarded a development contract on 15 Apr 03. The first Phoenix fielding was in Jul 04. Tri-band terminals (X, C and Ku) will be fielded in FY04 and FY05. A quadband upgrade in FY06 will add Ka band. Phoenix will be fielded to echelon above division signal units.

Combat Service Support (CSS) Satellite Communications (SATCOM)

Description. The CSS-SATCOM provides rapidly employed, BLOS communications-enabling hardware to logisticians at the tactical and operational levels. The program, which grew out of the G-4 Connect the Logistician Focus Area, provides COTS-based very small aperture terminals (VSAT) and a supporting global infrastructure to logistics activities integrated within and supporting the Army's modular force structure.

Program Status. CSS-SATCOM has completed fielding to the 3rd Infantry Division. The system is currently being fielded to the 101st and 10th Divisions and is aligned with the Army Campaign Plan for future fieldings. CSS-SATCOM was designated a formal program in the first quarter of FY05 under the auspices of the Program Executive Office Enterprise Information Systems (PEO EIS). Formal program management constructs will be developed in FY05.

Global Positioning System (GPS)

Description. GPS is a space-based radio position/navigation (POS/NAV) system that provides extremely accurate, continuous, all-weather, common grid, world-wide navigation and three-dimensional positioning, velocity and timing information to land, sea, air and space users. Components are the space, ground control and user equipment segments.



Program Status. The Defense Advanced GPS Receiver (DAGR) includes the Selective Availability Anti-Spoofing Module (SAASM) and will replace the current Precision Lightweight GPS Receiver (PLGR), which will be cascaded to other units, primarily in the Reserve units. Fielding begins in 1QFY05. The DAGR itself will be replaced by an improved DAGR projected for FY13 when the associated satellite constellation and ground control stations have reached FOC.

Single Channel Ground and Airborne Radio System (SINCGARS)



Description. SINCGARS provides commanders with a highly reliable, secure, easily maintained combat net radio that has both voice and data handling capability in support of C2 operations. SINCGARS, with the Internet controller, provides the communications link for the digitized force. The Advanced System Improvement Program (ASIP) models are of a reduced size and weight, providing further

enhancements to operational capability in the Tactical Internet environment.

Program Status. A production delivery order was awarded in 3QFY04 to procure congressionally directed assets for the ARNG and SBCTs. As of May 04, approximately 250,000 radios have been fielded.

Warfighter Information Network–Tactical (WIN-T)

Description. WIN-T provides an integrating, secure, high-capacity backbone communications network for the Future Force and is now designed to spiral capabilities into the Current Force, enabling them to achieve and sustain complete information dominance at all levels, environments and global locations. WIN-T is an integrated communications network optimized for offensive and joint operations, providing the theater combatant commander with capability to perform multiple missions simultaneously. WIN-T integrates dispersed operations over extended distances from fixed and mobile platforms; is scaleable, tailorable and dynamically adaptive to missions; and consists of a three-tiered architecture (ground, airborne and space) that expands and contracts with the fight. Special features of the network eliminates stovepipe communications systems utilizing a single integrated framework, provides broadband on-the-move communications, and reduces vehicle and Soldier footprints through use of the airborne tier. WIN-T ensures the uninterrupted flow of timely, relevant and actionable information; the right information to the right Soldier, at



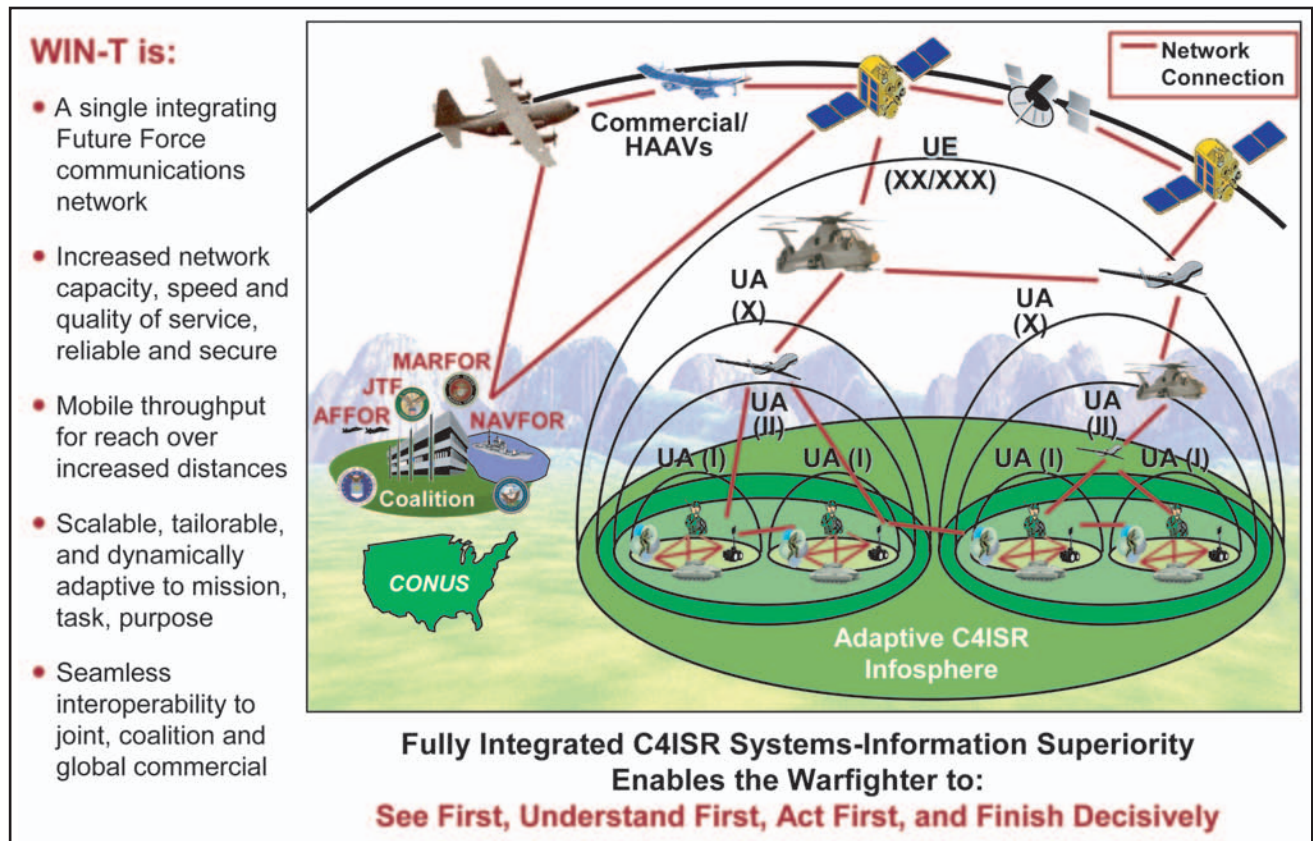


Figure D-10. Warfighter Information Network-Tactical

the right time, while seamlessly linked to the Joint Tactical Radio System (JTRS).

Program Status. On 10 Sep 04, the Defense Acquisition Executive (DAE) authorized a revised acquisition approach, which calls for combining the two prime SDD contractors into a single team. General Dynamics is now the single prime contractor with Lockheed Martin as its major subcontractor. The acquisition details are presently being worked on, keeping the program aligned with FCS, and posturing it for initiatives to provide capabilities to the Current Force. Currently, development and operational testing is scheduled for 1QFY06, with Milestone C approval is scheduled for 2QFY06. Production contract award/LRIP is scheduled for 2QFY06 with an initial operational test scheduled for 4QFY08.

Joint Tactical Radio System (JTRS)

Description. JTRS is a family (ground, air and maritime domains) of common software-defined radios that provide seamless network connectivity throughout the battlefield in support of *Joint Vision 2020* objectives. JTRS is the military's affordable, mobile, high-capacity, lightweight, multiband radio system providing simultaneous voice, data and video communications. JTRS replaces 32+ currently fielded radio systems and will be a key component of the Tactical Internet using a family of network waveform applications. The Army is the executive agent for the JTRS program and is the lead Service for developing and testing all waveforms and certifying Software Communications Architecture (SCA) compliance. Additionally, the Army is responsible for two (Clusters 1 and 5) of the three primary Cluster

efforts (Clusters 1, 5 and AMF). Cluster 1 is developing the ground vehicular and airborne rotary-wing aviation form factors, while Cluster 5 is developing the handheld, manpack, and small form fit form factors.

Program Status. Cluster 1: The JTRS ORD was updated in Apr 03 to Version 3.2. JTRS Cluster 1 is in the SDD phase. Cluster 5: JTRS Cluster 5 received a successful Milestone B decision on 26 Apr 04 and awarded a SDD contract to GDDS on 16 Jul 04. A Milestone C decision is scheduled for 2QFY08. The JTRS Cluster 5 program is pursuing a two-spiral acquisition strategy. Spiral 1 focuses on the near-term manpack requirements, while Spiral 2 focuses on the technology needed to meet current and future warfighter requirements. JTRS Cluster 5 is structured to be synchronized with Project Manager UA and Land Warrior program capabilities and time lines.

Bridge-to-the-Future Network (BFN)

Description. BFN is the Army's bridging strategy to deliver increasing net-centric capabilities into the Current Force today, and will be followed by the initial transition to the WIN-T capability. Capability enhancements are increased voice, data and video services that are joint network ready and supports the Army's modular force designs (UA brigades, Units of Employment (UEX, division 2-star and UEX 3-star) and (UEY, theater)). BFN fuses the Army's Joint Network Node (JNN), Connect the Logistician—Combat Service Support (CSS), and intelligence Trojan Spirit initiatives into a single "good enough" strategy to deliver increased capabilities to the warfighter today.

BFN will provide the Current Force with a state-of-the-art COTS communications back-

bone network (high-speed and high-capacity) that will enable them to exchange information (voice, data and video) throughout the tactical UEY and into the sustaining base. The objective of the BFN is to incrementally insert increased capability COTS solutions to the Army's Current Force to satisfy Current Force capability gaps. BFN capability increments build off the recapitalization of the current Mobile Subscriber Equipment (MSE) and TRI-Services Tactical Communications (TRI-TAC) tactical communications systems.

Program Status. JNN was fielded to 3ID with fielding to 4th ID, 10th ID and 101st AA ongoing with anticipated completion 4QFY05/1QFY06.

Joint Network Node (JNN). (formerly known as the Area Common User System Modernization Plan (ACUS MP)

Description. JNN is the Army's component of the GIG and provides Army interconnectivity when embedded within the joint task force and ties in network-centric enterprise services via GIG-bandwidth expansion. Spiraling JNN into the force will provide commercial satellite augmentation to Army MILSATCOM, Internet Protocol (IP)-based services, voice-over IP (VOIP) augmentation to Defense Switched Network (DSN), unclassified/classified Internet down to the battalion level, secure digital telephone down to brigade level, and situational awareness. JNN provides a high-speed, high-capacity network communications backbone connection that is joint-capable, supports the warfighter's rapid movement and simultaneous operations, and disseminates information will all levels of security. Key items of the JNN are a SATCOM hub node, a joint network node, and a battalion command post (Ku SATCOM) node, as well as embedded local area network components.

Program Status. The FUE with the JNN is the 3rd Infantry Division with fielding completed in Oct 04. Fielding of the next three spirals (101st AA, 4th ID and 10th Mountain) began in Jan 05.

Command and Control (C2) Summary

Army C2 and JC2 supported by fully leveraged communications and computers and ISR capabilities are at the core of realizing the required characteristics envisioned in the Future Force. Networked communications and intelligence packages will dramatically improve command and control, making it possible to achieve significant advances in strategic responsiveness. The Army has already made important steps towards this goal. The ABCS and the C4 and ISR infrastructure for the current digitized forces provides a real-time blue force picture to ground maneuver units. The artillery and AMD components of ABCS are interoperable with both joint and multinational systems. ABCS can also

leverage theater assets such as JSTARS. During OEF and OIF, the Army demonstrated a significant increase in combat power when it exercised these capabilities. The Army will continue to incorporate lessons learned from operating ABCS in developing the C4ISR infrastructure for the Future Force.

Annex D Summary

Annex D of the *2005 Army Modernization Plan* provides an overview of key Army materiel programs funded in PB06. These programs are framed within the five emerging joint functional concept/capability categories used by the new Joint Capabilities Integration and Development System (JCIDS) process to analyze Joint Force future requirements and guide Army and other Service modernization efforts towards those requirements as they emerge. Other annexes in the *2005 Modernization Plan* examine modernization paths of doctrine, training, installations, personnel and force structure.

ANNEX E: PERSONNEL

Introduction

Continuing our support of a relevant and ready force, the personnel focus remains having the right quality and quantity of personnel (military, civilian, contractor) at the right place and time. Moreover, to provide and better manage personnel support—in concert with other modernization efforts—the Army requires up-to-date, web-enabled tools that are reliable and responsive to today’s environment. Our contribution to winning the global war on terrorism centers on personnel transformation (PT) and fielding a modular Army.

The PT initiative fundamentally changes the way the Army manages its manpower (forces and structure) and personnel (Active and Reserve Components (AC/RC)), families, veterans, retirees, Department of the Army civilians (DACs), and contractors). It includes the transformation of manpower and personnel programs, policies, processes and systems associated with the eight personnel life-cycle functions that comprise the Army’s personnel system.

1. Implementation of an enterprise-wide personnel and pay system will provide a single, authoritative data source and integrate all applications on one platform. This will centralize and simplify the personnel community’s information technology solutions, enhance responsiveness, improve data accuracy and enable reach efforts.
2. Civilian personnel management initiatives will improve management support for DACs and overcome workforce shortfalls anticipated over the next 10 years due to retirements. The National Security Personnel System (NSPS) and Senior Army Workforce (SAW) are key components.
3. Manning objectives will reshape, stabilize and train the force for transformation to the Future Force and joint and interagency operations.
4. “Continuum of service” will maximize and retain human capital across all components of the Army. Soldiers and civilians will be able to more easily move between components and duty stations.
5. Scientific studies will address selection, classification, recruiting and retention of Soldiers. Surveys ensure we are targeting the right skills.
6. Manpower and Personnel Integration (MANPRINT) promotes superior operational suitability through planned Soldier-system design. It yields safer systems with more efficient use of manpower, personnel and training.
7. Army well-being will help support Army transformation by improving Soldier performance, readiness, recruiting and retention. Three important ongoing, high-visibility well-being initiatives are Rest and Recuperation (R&R) Leave, Deployment

Cycle Support (DCS), and the Disabled Soldier Support System (DS3).

8. Force stabilization will increase combat effectiveness, sustain high levels of readiness, and provide for trained and cohesive units while reducing personnel and unit turbulence and other factors that detract from achieving increased combat effectiveness.

Personnel Transformation

PT will improve how we acquire, distribute, develop, deploy, compensate, sustain and structure all categories of personnel in all components. Transformation requires changes in how we organize, equip, man, train and employ our personnel, activities and formations on the battlefield, as well as in garrison. PT seeks to provide better human resources (HR) support to Soldiers on the battlefield, while dramatically reducing the personnel/unit footprint in the area of operations. Much of the HR services and support will be accomplished through reach capabilities provided by an enterprise personnel and pay solution afforded by fielding of the Army Enterprise Human Resources (eHRS) and Defense Integrated Military Human Resources System (DIMHRS).

The Enterprise Approach

Enterprise architectures facilitate change and offer Army HR providers the enabler to become a culture of innovation. An enterprise architecture will provide the full-spectrum support system that meets the demands and expectations of the Army's Future Force. It will be knowledge-based and sophisticated, but simple-to-use, near real-time, 24/7-accessible, and responsive to the commander and Soldier. Traditional battlefield services such as postal operations; morale, welfare,

and recreation (MWR) services; casualty operations; personnel accounting and strength reporting; replacement operations; and essential personnel and pay services will continue to be provided to the deployed Soldier as part of the Army G-1 mission, but will be administered differently and more efficiently.

Army Enterprise Human Resources System (Army eHRS)

The Army's human resources community will address those processes and capabilities DIMHRS does not fulfill by developing and implementing additional compatible modules of PeopleSoft products. To bridge the gap between the functionality our legacy systems provide and future HR systems, the Army will leverage available technology, implement improvements to enhance capability, prepare customers for change, and position intermediate personnel systems for integration and/or inclusion. Much progress to date has been achieved in the current high-operational-tempo (OPTEMPO) environment without external funding and limited manpower, but can only continue with additional resources and personnel who have functional and/or technical expertise in developing and fielding large commercial off-the-shelf (COTS) HR systems. Training HR professionals and specialists to operate in the new environment will be done in conjunction with the DIMHRS effort at the higher levels, but the Army will be solely responsible for training the Army HR community through classrooms, labs and self-paced online classes.

Defense Integrated Military Human Resources System (DIMHRS (Pers/Pay))

The Army is in the forefront of the Department of Defense (DOD) effort to develop the congressionally mandated DIMHRS, which will be implemented using PeopleSoft, a COTS

HR management system. DIMHRS will provide a single unclassified, integrated military personnel and pay management system for all DOD military personnel during peace, war and mobilization/demobilization. DIMHRS creates a single record of service for each Service member. This record supports the Service member throughout his or her entire career regardless of his or her status, ensuring accurate and timely access to information for all authorized users, including Service members. In an effort to fuse this DOD endeavor with its ongoing PT initiatives, the Army has volunteered to be the first Service to field DIMHRS. The projected initial operating capability of DIMHRS for the Army is FY06. The deployment sequence will be lead by the U.S. Army Reserves, followed by the regular Army and Army National Guard.

eMILPO

The eMILPO application continues to serve as the Army personnel community's premier tool for personnel accounting. As a web-based application, it has modernized many personnel processes. Through the Datastore query tool, units and personnel specialists have ready access to information that previously was limited and cumbersome to obtain. The design of the software also enables greater flexibility in modifying the application to meet the changing needs of our Army at war. Since fielding on 1 August 2003, 12 software upgrades with 168 functional improvements have been made with major improvements such as patient tracking and individual nonavailability codes. In the second quarter FY05, eMILPO will subsume the current PERSTEMPO application. This will bring PERSTEMPO software into compliance with National Defense Authorization Act (NDAA) 2004 changes and reduce stovepipe personnel systems. Continued funding for this program is essential for eMILPO to continue

to mitigate against risks associated with the DIMHRS fielding schedule. Increased funding for this is needed to support critical near-term wartime requirements and to provide greater visibility of mobilized RC Soldiers.

Deployed Theater Accountability Software (DTAS)

The Deployed Theater Accountability Software (DTAS) application is being developed to serve as a strength accounting tool, with classified processing capability, that is compatible with and complements eMILPO capabilities. DTAS will provide near real-time personnel asset visibility of deployed Soldiers at all echelons by enabling deployed commanders/first sergeants to account daily for personnel by name, unit and grid coordinates. This software provides a number of firsts for the Army personnel community as it will provide a disconnected-operations capability that will update through the classified Secret Internet Protocol Router Network (SIPRNET) when communications are available. It will meet the Office of the Secretary of Defense's (OSD's) medical surveillance guidance as well as track person-



nel deployment dates history. It is designed to track all categories of personnel in a deployed theater to include all military Services, civilian government, civilian contractor, civilian nongovernmental organizations and coalition forces. This capability enhances

senior leader decision making by providing a clearer picture of deployed forces. The software also can be compatible with and pro-

vide complementary capability to DIMHRS. Funding for this program must be increased to provide additional capabilities such as a PDA for greater mobility, fully integrated strength management capability for better responsiveness for replacement operations, and full integration of the manifesting capability to reduce the number of separate systems and improve data reliability.

Personnel Services Delivery Redesign (PSDR)

PSDR provides the construct to provide end-to-end services to Soldiers to support the Army's modular transformation by maximizing the capabilities of enhanced personnel information technology and bandwidth capabilities. PSDR addresses the loss of personnel services battalion/Soldier support battalion structures by migrating tasks to battalion and brigade S1 sections resourced with HR professionals in adequate numbers to accomplish expanded requirements, enabling them to bridge directly to the appropriate CONUS-based HR professionals to accomplish personnel services tasks. Empowering battalion and brigade S1s enables delivery of most personnel services close to Soldiers and supports the intent of transformation. A course of action that defines how we will deliver critical theater-level personnel services in the areas of postal; casualty; and redeployment, return-to-duty, R&R, reception and replacement (R5) support is being staffed. Theater-level support will require SRC12 structure to provide modular, deployable, trained and scalable organizations with the capabilities to accomplish these tasks.

Army Systems of Systems Architecture (SOSA) Database

The SOSA is the Army's personnel system data repository. By direction of the Secre-

tary of the Army and the Chief of Staff of the Army in Army Knowledge Management (AKM) Memo #3, all manpower and personnel systems must be registered in the SOSA. It provides an accountability of and tracks detailed information about systems, reports, extracts and databases maintained within the Army HR community. The SOSA is a living document that portrays a current view of the Army G-1's "as is" information systems architecture. It contains vital system information such as personnel system descriptions; the proponent's administrative information (name, address, telephone number, etc.); system interfaces; Federal Information Security Management Act (FISMA) data requirements; Business Management Moderation Program (BMMP) data requirements; and other important functional and technical information. This repository of information is accessible via the Internet (<https://www.armyhr.hoffman.army.mil>) with a preapproved password. The SOSA is a tool that will help facilitate a smooth data migration from legacy systems to DIMHRS, Enterprise Human Resource System (eHRS), and other functional development efforts.

Personnel Transformation Challenges

The Army has over one million military personnel geographically dispersed across seven continents. Soldiers are continually moving both geographically and between components of the Army and duty statuses; entering and exiting the Army; and requiring frequent personnel services. The Army currently relies on five major databases and over a hundred different applications, subsystems, reports and queries to manage manpower and personnel services. Many of these databases and subsystems use different data standards and protocols, making modernization and integration difficult and expensive. A single, integrated military personnel and pay management system is critical. Such an in-

egrated personnel database will allow better tracking of Soldiers from home station through mobilization to the battlefield and back, managing sensitive casualty information in a media-rich environment, and measuring the OPTEMPO of individual Soldiers. Future Force Soldiers will train for a more complex warfight. As a result, there will be an ever-increasing need for quality recruits. The Army



will be in sustained competition with industry to identify and recruit quality people with an aptitude for high-tech skills. After initial training, these Soldiers must sustain current skills and develop new skills needed to stay current with rapidly changing technology. As these highly skilled Soldiers reach decision points on whether to continue their careers in the Army, competition will remain keen from the civilian job market, where opportunities abound for their qualifications. Increased security concerns provide additional challenges in providing readily accessible information to leaders, while protecting the privacy of the individuals served by the personnel community. Security concerns put multiple demands on our HR assets, draining our units, leaders and Soldiers of valuable time and energy once applied to other critical areas. Recently added demands of homeland defense further stress the Army's ability to fund efforts such as well-being programs for Soldiers and their families, personnel research and development, and

personnel systems improvements for PT. The Army personnel community continues to improve data quality, reduce redundant manual input of common data elements, and eliminate manpower intensive analysis of raw information. These improvements will be complemented by efficiencies realized from the enterprise approach to Army HR systems, business process reengineering, leveraging web technology, data cleansing, and preparing for a multicomponent, joint, DOD pay and personnel system. All these efforts are designed to improve strategic responsiveness, enable Army transformation, enhance personnel services, and provide reach capability, thus enabling reductions in redundant layers of personnel staff on the battlefield.

Strength Management System Redesign (SMSR)

The fielding of the Enlisted Specialty (ES) model in mid-FY05 will mark the completion of the SMSR effort, a multiyear effort to build a new Army strength analysis and forecasting system for the Army G-1 and all stakeholders. The suite of new models, collectively known as the Active Army Strength Forecaster (A2SF), uses the latest algorithms, processors, databases and telecommunications to form a state-of-the-art strength management and forecasting system. Among the numerous improvements, this new system increases flexibility in modeling manpower policies and programs; provides greater accessibility through web-based technology; improves projection accuracy; and reduces operation and maintenance costs by a half million dollars per year.

Military-to-Civilian Conversions

The Army has embarked on a strategy to convert military positions to civilian as a down payment to build and sustain at least 10 new

AC brigades. This initiative will enhance Army force capabilities, reduce stress on the Current Force, enable the transition to a Future Force, and increase agility by creating modular units. Military-to-civilian conversions are a critical part of kick-starting the additional brigades for modular conversion. During the FY06-11 budget planning process, the Army identified nonmilitary essential missions being performed by military personnel. Each operating agency was provided a target number of spaces to convert. Those conversions have been documented beginning in FY05, and funding was programmed for the increased civilian authorizations. The Army documented 7,227 conversions in FY05. Additional conversions are programmed for the out-years in Defense health programs. Overall, the Army has programmed almost 10,000 conversions. We continue to work with the Joint Staff and the OSD for additional conversions in joint and Defense programs.

Online Civilian Personnel Systems

The Army continues to be in the forefront of initiatives to create a fully automated civilian personnel support system that is web-based, real-time and 24/7-accessible for Civilian Personnel Operations Centers (CPOC), Civilian Personnel Advisory Centers (CPAC), managers, and employees. With the development of the Army Portal, FASCLASS and tracking of deployed civilians, the Army has continued to reach these goals. The Army Portal will provide a one-stop, web-based application for access to all Army civilian HR tools and applications. FASCLASS is an automated repository for all Army civilian HR position descriptions. This automated tool provides the ability for managers, employees and HR specialists to search for (in a variety of queries), modify and create position descriptions. The Army has also developed a process for tracking deployed civilians. Previously, there

was no documented process for accountability of deployed civilians. The Army received approval from the Office of Personnel Management (OPM) to file actions in the civilian personnel folder as permanent documents. The Army established unique authority codes identifying the military operation/exercise that will allow reporting capability for deployed civilians. The Civilian Personnel Management Service (CPMS) is recommending that all DOD components adopt this process.

National Security Personnel System (NSPS)

The National Security Personnel System (NSPS) will allow DOD and the Army to establish a more flexible civilian management system. NSPS will allow the Army to become a more competitive and progressive employer at a time when the country's national security demands a more responsive system. NSPS will streamline the hiring process, improve the performance management process, increase flexibility to reassign employees, and increase supervisor and employee accountability. NSPS will bring about essential change while preserving the core and enduring values of the Civil Service. A limited implementation is projected to begin in July 2005, and will continue until the Army's approximately 230,000 civilian employees are included. All DOD civilian employees will transition from 2005 through 2008.

Senior Army Workforce (SAW)

The Army must continuously grow highly skilled civilian leaders. This requirement was validated through the workforce analyses conducted as part of the CPMS XXI study and the Army Training and Leader Development Panel (Civilian). Due to downsizing of the current workforce and the projected retirements at all grade levels in all occupations,

this need must be addressed now. The SAW, as it is proposed, is an innovative strategy to assure that the Army grows and sustains its civilian leaders. This cadre of multifunctional leaders will facilitate Army's military to civilian noncore task conversion, enabling Army to plan, project and meet requirements rather than respond reactively. The SAW uses drivers from CPMS XXI, the Army Training and Leader Development Panel Civilian (ATLDP-C) study and data that all point to certain common trends that must be addressed now—the aging civilian workforce, the lack of focused development for civilian leaders and limited human capital planning tied to budgeting and mission requirements. The key tenet of the SAW is the centralized selection and management of civilian leaders, supervisors, and managers in grades GS-12 to -15 (or their equivalents) Army-wide. SAW assignment specialists will centrally manage assignments and selections in a similar manner as the Officer Personnel Management Directorate of the Human Resources Command. This centralization will enhance the ability of the Army to provide the right person to the right job when needed, removing the organization's requirement to find the right person. The five key components of the SAW foundation are central management, training and development, multifunctional career tracks, a competency-based system and mobility.

End Strength

As mandated by Congress in public law, the Army was projecting less than a year ago that its end strength would be 482,400. At the end of FY04, the Army was slightly less than 500,000 strong and Congress passed a bill that raises the future end strength to 502,400 and eventually 512,400. With the implementation of Stop Loss, the need for a temporary increase as the Army transforms into modular units, and the continued state of

national emergency, the short-term projection shows the Army increasing in strength.

Manning the Force

The Army continues to implement a progressive and multifaceted personnel and unit stabilization system to overcome mission-impeding personnel turbulence distracters. As the Army continues to conduct combat operations, it is transforming to a unit focused manning strategy. The Army's force stabilization policy increases unit readiness and deployability while reducing Soldier turbulence. This directly impacts a unit's ability to train, fight, win and return together from missions. Unit focused stability (UFS) is setting the condition for the Army to build more deployable combat units. However, the primary focus continues to be on the deployed force while stabilizing the home station forces in order to set the conditions for increased readiness and proficiency throughout the Army. The Army is distributing Soldiers based upon two priorities. Manning priority 1 (MP1) units will be manned between 98-102 percent in the aggregate. Manning priority 2 (MP2) units will be manned between 90-97 percent in the aggregate. The Army will establish policies for the length and frequency of tours, and number of deployments for the AC and RC. This will lead to a thorough force structure analysis that will result in recommended force structure adjustments, including formerly identified required adjustments to the AC/RC force mix. The Army is continuing to address the necessary refinements for the proper mix of manpower among the military, DACs and contract support requirements. This ongoing refinement process ensures that the Army clearly delineates core and noncore functions in the effort to privatize noncore functions. The metric for success for all actions will be the decrease of turmoil on units, Soldiers,

and families resulting in increased combat readiness throughout the Army.

Force Stabilization

Force stabilization is intended to produce highly cohesive combat teams capable of increased operational effectiveness, while decreasing turbulence and increasing predictability and stability for Soldiers and their families. To achieve unit cohesion and higher



operational capability in our combat units, the Army must (1) synchronize the assignments of large numbers of Soldiers with training and employment of units, (2) manage personnel gains and losses to reduce daily personnel turnover stemming from the individual replacement system, and (3) manage force modernization and force structure changes within the force stabilization concept. Force stabilization is supported by two manning strategies: stabilization and unit focused stability.

Under the stabilization strategy, all Soldiers stationed at CONUS installations are stabilized at their current assigned post for longer periods and will be moved by HRC based on three prioritized criteria: needs of the Army, leader development and individual preference. Although Soldiers in higher-density

military occupation specialties (MOSs) and at larger installations are likely to be stabilized longer than those in lower-density MOSs or at smaller installations, all Soldiers can expect to be assigned to their posts for greater periods of time than a typical tour today. Stabilization meets the CSA's intent to stabilize Soldiers and families in CONUS with more predictability and stability in their unit and community assignments.

Unit focused stability serves as a key enabler for unit rotations by synchronizing the assignment of Soldiers with the unit's operational time line. Unit focused stability is supported by two manning methods, cyclic and life-cycle manning, which are applied based on unit mission, operational requirements and the overall situation. Cyclic manning has been approved by the CSA as a method, but not yet for implementation. Life-cycle manning has been approved by the CSA and will affect all maneuver Brigade Combat Teams (BCTs). G-1, in coordination with G-3, has established the life-cycle implementation schedule based on current and future operational deployment and redeployment time lines as well as the current modular transformation schedule. Currently, the 172nd SBCT is well underway with life-cycle manning while two other activated modular BCTs, 3/10 and 4/101, began life-cycle manning in September 2004. Six more BCTs will undergo life-cycle manning in FY05, and the goal is to have all BCTs undergo life-cycle manning by the end of FY09. Under the life-cycle manning model, Soldier assignments to that unit are synchronized to the unit's established 36-month or life cycle. Soldiers arrive, train and deploy together during the unit life cycle, providing commanders and Soldiers with a predictable environment where they will be able to build, train and sustain high-performing, cohesive teams. Life-cycle manning will help reduce nondeployability problems because each Soldier's time

line will be synchronized with the unit's life cycle, and Soldiers will not PCS/ETS (unless ETS is due to chapter action) during the unit life cycle but at the end of it. Together, these strategies that support force stabilization will support the combatant commander with more deployable, combat-ready forces, while also benefiting the Soldier and his family.

Individual Ready Reserve (IRR) Management and Mobilization

Prior to the global war on terrorism, the IRR had been characterized as a “Cold War relic,” and “incapable of meeting the needs of the 21st century.” The Army is currently in the midst of the largest Army Guard and Reserve mobilization since World War II and has recently looked to the IRR to fill critical shortages within the force. The challenges to mobilizing the IRR include individuals who require extensive train-up time, are nondeployable, have mismatched required skill sets or cannot be located. The current state of the IRR provides a false sense of security that does not support transformation initiatives or future operational requirements. The Army has created an expectation that individuals who have a remaining military service obligation (MSO) can complete their service in an inactive/nonparticipant status. While mechanisms are in place to enforce the MSO, a systemic change needs to be implemented immediately—one that meets the Army's expectations as well as the expectations of the individual Soldier. The Army has proposed a plan to reset and reinvigorate the IRR by returning to best practices and backing established policies in order to increase the Army's ability to maintain a trained and ready reserve force. Reshaping the IRR by implementing near-term initiatives such as resetting the force, initiating an intense recruiting campaign, enforcing the MSO—not only in contracts, but verbally by recruiters—and

requiring minimum annual training requirements for all IRR members, will create a viable source of manpower. Long-term initiatives will also be initiated and ultimately help redefine IRR eligibility, utilization and culture.

Army Recruiting and Retention



Army recruiting continues to provide Soldiers to man our Army. The entire accession process is being shaped to provide the right Soldier in the right MOS, to the right unit, at the right time. This requires that Army recruiters engage communities across the United States, presenting the full range of opportunities offered for serving as a Soldier in today's Army. The Army aggressively shapes its incentives programs to continue to attract high-quality men and women. This ranges from well-established enlistment bonuses to dynamic programs such as Partnership for Youth Success (PaYS). The Army continues to improve the accession process in ways as varied as more advanced technology at the recruiter level, applying better business practices, honing high-paced and rigorous training in the training base, and providing fully trained Soldiers to our units.

The Army's retention program is designed to increase retention and reduce attrition by empowering Soldiers through counseling and

mentoring. The overall goal is to match the needs, wants and desires of a Soldier with current Army needs. Retaining quality Soldiers enhances readiness in all components. Army readiness is enhanced by aligning the Current Force with Army force structure requirements based on established priorities at the time of reenlistment. Reenlistment is critical to supporting Army needs. Commanders and unit leaders are ultimately responsible for the retention of Soldiers, career counselors provide advice and counsel, and the Army provides the necessary tools. The Army recruits an individual but will retain a family.

Continuum of Service (COS)

The Army will institutionalize personnel support for a lifetime of service. The key reason is flexibility in support of modular and tailorable forces. This includes formalizing the concept of “continuum of service” that supports fluid, progressive movement across Army components, including civilians and retirees, based on the needs of the Army and the individual. The COS program, jointly led by the G-1 and the Assistant Secretary of the Army (Manpower and Reserve Affairs) (ASA (M&RA)), will enable the Army to meet operational readiness requirements by supporting requirements of the total Army team and will promote acquisition and maintenance of high-tech and other needed skills. Its focus will be recruiting, retention, and transition/integration and has an overall mission of maximizing human capital development for the Army.

New initiatives, such as the “blue to green” program to transfer qualified U.S. Air Force and U.S. Navy personnel downsized by their Service to the Army, and the 09L Arabic Translator Aide program are bringing needed skills to the Army and improving operational capabilities. Incentives will be developed and instituted to reward voluntary returns to active

duty if needed, after retirement from a “traditional” career of service. Personnel life-cycle management policies will allow all Soldiers to have flexibility in career management.

Changes in the operational environment are driving other COS initiatives. The RC is undergoing a new force generation that will enhance their operational readiness for the global war on terrorism. RC units will generally face a one-year rotation in a cycle of six years. The IRR is to be revamped and streamlined into a force of trained individuals associated with troop program units and more prepared for contingencies. Further, several thousand nonmilitary essential authorizations are to be civilianized through 2009 and systems put in place to retain qualified Soldiers who are departing active duty to fill those positions. COS is developing a new paradigm in personnel management to provide more flexibility in creating needed joint and expeditionary capabilities.

Compensation and Entitlements

The Army strongly supports maintaining an equitable and effective compensation package. A strong benefits package is essential to recruit and retain the quality and dedicated Soldiers necessary to execute the National Military Strategy. In recent years, the administration and Congress have supported compensation and entitlements programs as a foundation of Soldier well-being. An effective compensation package is critical to efforts in the global war on terrorism as we transition to a more joint, expeditionary, unit-centered and cohesive force. The FY05 President’s Budget continued providing pay raises at Employment Cost Index plus 0.5 percent, which helps make the Army more competitive with the civilian sector. This equates to a 3.5 percent raise for FY05.



The Army continues to improve housing opportunities for our Soldiers by eliminating average out-of-pocket housing costs by 2005 as reflected in the Basic Allowance for Housing program. This initiative improves the well-being of our Soldiers and families and contributes to a ready force by enhancing morale and retention.

The Army has undertaken a number of initiatives to provide special compensation for Soldiers who serve their country under hazardous conditions, and we continue to look for ways to compensate Soldiers for the hardships they and their families endure during time of war. In addition to supporting increases in hostile fire pay and family separation allowance, the Army has implemented numerous programs to encourage volunteerism while simultaneously improving unit readiness. The Army makes maximum use of assignment incentive pay to provide Soldiers the opportunity to serve in a variety of assignments. We will continue to emphasize fair and equitable compensation and benefits for Soldiers and their families and develop new programs to address the dynamic environment of a transforming Army.

eArmyU

This award-winning, state-of-the-art, virtual learning program revolutionizes education by eliminating barriers to postsecondary op-

portunity by providing academic access, anytime and anywhere, across the Army. Initially fielded at Fort Campbell, Fort Hood and Fort Benning, almost 50,000 Soldiers are enrolled in eArmyU at 16 enrolling installations. More than 16,300 Soldiers have transitioned from post to post, seamlessly accessing 146 degree programs at 29 regionally accredited colleges and universities. All eligible Soldiers receive tuition assistance, up to the established semester hour cap and ceiling, books, fees; an Internet service provider account; an e-mail account; eArmyU "boot camp" tutorial; online academic tutoring; digital library services; 24/7 help desk and technology support. Effective FY05, access to the cutting-edge eArmyU program will be available to all eligible active duty enlisted Soldiers Army wide. Through eArmyU, all eligible enlisted Soldiers have an online capability to earn a degree without regard to duty hours, deployment schedule or family issues.

Army Selection Board System (ASBS)

The Army Selection Board System (ASBS) is a fully operational, automated tool used by the U.S. Army Human Resources Command and the Secretariat for Department of the Army Selection Boards to prepare, view and cast votes to candidate's files appearing before active duty officer promotion, command and school selection boards. It takes information once viewed in hard copy and microfiche and displays that information on computer screens. ASBS significantly improves the quality of documents viewed and streamlines the preparation of files and the selection process. In addition, ASBS is being used in the development of My Board File (MBF) which will allow all personnel eligible for consideration by a selection board to view and certify their file via a web-based system before it is seen by a selection board. ASBS is further

being developed to incorporate the active duty enlisted and RC selection board systems.

Army Well-Being

Army well-being, “the human dimension of readiness,” offers a multidimensional approach to the Army’s people programs. It is the cultural change agent to transformational initiatives such as modular force conversion, force stabilization, and Installations as Flagships concepts. Well-being accomplishes this by expanding the Cold War concept of “quality of life” through an alignment of core competencies and functions of the Army’s people programs. This holistic approach focuses on the mental, physical, material and spiritual growth of our people in support of an ever-changing Army. Well-being initiatives that support this transformation are based on four overarching strategic goals that reflect the aspirations of every Soldier, DACs, and family member: “To Serve”—personifies the professional development and the intangibles of military service, such as values and camaraderie; “To Live”—refers to the physical and material needs related to shelter, food and health care; “To Connect”—refers to programs that allow the individual to develop a pride and sense of belonging—a connection to the Army team through leadership, family programs, and welfare that creates acceptance, contribution and social interaction; and “To Grow”—refers to an individual’s need to expand his capabilities creatively and intellectually through citizenship, education, recreation and family member employment. Well-being establishes a measurable set of objectives and links them to institutional outcomes that impact readiness, retention and recruiting, and provides the Army a tool for monitoring the well-being of the forces. New well-being initiatives that support the global war on terrorism include the DCS; the U.S. Central Com-

mand (USCENTCOM) R&R; the DS3; and the Well-Being Liaison Office (WBLO) Army information line, 1-800-833-6622. Effectively designed, executed and delivered, well-being is an integrated approach that balances the needs of the people with the needs of the Army in which they serve.

Disabled Soldier Support System (DS3)

On 30 April 2004, the Department of the Army introduced the DS3. This program provides severely disabled Soldiers and their families with a system of advocacy and follow-up with personal support to assist



them as they transition from military service to the civilian community. DS3 incorporates and integrates existing programs to provide holistic support services for severely disabled Soldiers and their families throughout their phased progression from initial casualty notification to their return to home station and final destination. In addition, DS3 is a system to track and monitor severely disabled Soldiers for a period of time beyond their medical retirement in order to provide appropriate assistance through an array of existing service providers. DS3 facilitates communication and coordination between severely disabled Soldiers and their families as well as pertinent local, federal and national agencies and organizations such as the Department of Veteran of Affairs (DVA), Department of Labor (DOL), and many veterans service organiza-

tions (VSO). The Army's goal is for DS3 to work in concert with other key organizations to ensure that severely disabled Soldiers and their families are given the care, support and assistance they so rightly deserve for their selfless service and sacrifice to our nation. Soldiers and family members can learn more about the DS3 by calling toll free 1-800-833-6622, or by visiting the DS3 web site at www.ArmyDS3.org.

Deployment Cycle Support (DCS) Program

The Army continues to execute the DCS concept plan (CONPLAN) that prepares Soldiers and deployed DACs for the return home to their family members and their predeployment environment. The CONPLAN directs reintegration training (RIT) to occur during the reconstitution phases (in-theater for Soldiers and redeploying DACs) with family members receiving RIT at home station, and post-deployment RIT at home station/demobilization stations, and concludes with reconstitution RIT at home station. Additionally, a web site (<http://www.armyg1.army.mil/WellBeing/DeployCycleSpt.asp>) was established with posted reference/support materials to assist units and commanders with accomplishing DCS tasks.

To further assist Soldiers, DACs, and family members, Army One Source (AOS), a toll-free phone line, became operational on 15 August 2004, providing information and referrals 24/7 to include six face-to-face counseling sessions and crisis education materials. It is available to all AC, RC and deployed DACs. The toll-free CONUS number for the AOS is 1-800-464-8107. The OCONUS number is (access code) 800-464-8107. If the toll-free service is not available, collect calls may be made to 484-530-5889.

Also, the Army initiated the use of post-deployment health care management guidelines (PDHCMG) to provide continuous medical screening and assistance to AC and RC Soldiers and their family members. PDHCMG covers deployment-related health concerns, uses embedded deployment health-care ombudsmen and advocates in the primary health-care system, and addresses other medical-related concerns in support of Soldiers and family members.

For the Army National Guard and U.S. Army Reserve, commanders are responsible for conducting redeployment and post-deployment personnel operations, as described in the DCS CONPLAN, for all units returning from deployment. They undergo the same process as their AC counterparts for the reconstitution phase. Upon arrival at their demobilization station, they undergo a five-day postdeployment/demobilization training schedule, which incorporates the critical postdeployment phase DCS RIT tasks. Upon release from active duty (REFRAD) the units return to their home station. At the direction of the Assistant Secretary of Defense for Manpower and Reserve Affairs, reservists are not required to attend drill for 60 days from their REFRAD date. Once they return to drilling status, they undergo the reconstitution phase of DCS RIT.

Rest and Recuperation Program

On 23 September 2003, the Under Secretary of Defense, Personnel and Readiness (USD (P&R)) approved an R&R Leave program for personnel serving in the USCENTCOM area of responsibility (AOR) in support of Operation Iraqi Freedom. USCENTCOM also authorized personnel four days of off-duty "pass" to R&R locations throughout the theater in the Fighter Management Program now called the Rest and Recreation Pass Program. The R&R



Pass and Leave programs are separate, yet complementary, programs. The underlying assumption is that R&R opportunities are vital to maintaining combat readiness and capability when units are deployed and engaged in

intense, sustained operations. These opportunities increase operational effectiveness as the effects of prolonged combat stress and family separation are mitigated.

On 25 September 2003, USCENTCOM initiated the R&R Leave program for all Service members, AC or RC, and DACs assigned to a 12-month tour of duty. The R&R leave Program provides eligible individuals two weeks of chargeable leave between their third and eleventh months in theater.

On 20 September 2003, OSD designated the Army as the executive agent for the USCENTCOM AOR R&R Leave program (policy, programming and budget). OSD also approved the designation of three additional “gateways” (aerial ports of debarkation or APODs): Atlanta, Dallas/Fort Worth and Los Angeles. Effective 19 December 2003, OSD approved fully funded onward travel for R&R leave participants. R&R leave participants receive round-trip tickets from the AOR to the nearest commercial airport of their leave destination and return.

Operational requirements and Service member preference are all factors in determining which individual participates in the R&R Leave

program at a given time. Prior to intra-theater movement, commanders conduct R&R leave briefings with assigned personnel that include modified DCS tasks (i.e., risk assessment, medical, reunion/reintegration, and suicide prevention). Tasks at the gateways include, but are not limited to, customs screening and onward travel arrangements to facilitate individual R&R leave plans. By the end of September 2004, the program had provided R&R leave opportunities to over 111,000 participants.

Army Retirement Services

Established to ensure that Soldiers and family members are provided the very best advice in preparation for retirement and to further ensure that retirees and their families or survivors are taken care of in their postretirement years, Army Retirement Services provides policy oversight and frequent guidance to the worldwide installation Army retirement services offices. To support more Soldiers, retirees and families with smaller installation



Retirement Services staffs, this program uses web-enabled tools. Soldiers preparing for retirement and their family members can learn about retirement through the Army Retirement Services home page at <http://www.armyg1.army.mil/retire>. Further, the law dictates that the Survivor Benefit Plan (SBP), authorized

by Congress in 1972, be publicized and managed by properly trained counselors at installation level. Recent changes in law that affect active duty deaths make it even more important that SBP counseling is available at installation level.

Army regulations also stipulate that Headquarters, Department of the Army (HQDA) publish *Army Echoes* periodically to help keep retirees and their families informed of any changes to laws or procedures, health care changes, and a wide variety of helpful information. As the retired and annuitant population approaches the one million mark, it is vital to be able to flow information to all parts of our personnel base. In addition to publishing *Army Echoes* three times per year and in an effort to make information more accessible and cost efficient, Army Retirement Services uses its web page to electronically update retirees on a regular basis. Thus far, over 5,000 retirees have volunteered to receive *Army Echoes* by e-mail vice receiving hard copy mail.

Army Retirement Services also supports the CSA Retiree Council that meets in April and October, both meetings ending with an update briefing to the CSA. In addition, each Army installation is required to host a retiree appreciation day annually to honor and serve retirees.

Furthermore, the Army Benefits Center-Civilian has earned an outstanding reputation for supporting retiring civilians and has greatly improved retirement application processing times. Without question, Army Retirement Services, both at HQDA and at the installation level, remains a vital part of the personnel life cycle and must be maintained as a part of the modernization of our Army.

Army Career and Alumni Program (ACAP)

An integral element of the Army personnel life cycle, the ACAP is the Army's comprehensive transition program for Soldiers, DACs and their family members. The program includes preseparation counseling, benefits counseling, job search training and employment assistance. Federal law requires the Services to provide transitioning Service members with preseparation counseling not later than 90 days prior to separation or retirement date, to inform them about the Verification of Military Experience and Training (VMET) document and establish permanent employment assistance centers. ACAP partners with internal Army service providers as well as the DOD, DOL and DVA to offer the best possible transition services available.

The ACAP online web site at <http://www.acap.army.mil> provides information on the location of the 53 ACAP centers, types of services offered by each center, and listings of ACAP job fairs and job opportunities posted by private sector employers and federal and state agencies.

ACAP also supports mobilized RC Soldiers by delivering the mandatory preseparation counseling and follow-on services at the time of demobilization.

ACAP recently established a specific web page at <http://www.ds3soldierconnection.army.mil> to provide job connections for our disabled (DS3) Soldiers.

ACAP makes a difference to Soldiers—not only those who use the program, but those who continue to serve in the Army. Knowing that ACAP will be available to them when it is their turn to leave, serving Soldiers are

more dedicated to the Army as a result of the positive effect the program has on their departing fellow Soldiers. ACAP has a strong linkage with the Army's recruiting program, by providing a reassurance to potential recruits and families that the Army takes care of their sons and daughters when they have finished serving their country. ACAP is relevant and good for all who serve in our Army.

Army Center for Substance Abuse Programs (ACSAP)

The ACSAP has developed and promulgated the Risk Reduction Program (RRP) to assess the level of high-risk behaviors Soldiers are exhibiting in the form of substance abuse, suicide, spousal/child abuse, AWOL, crimes against persons/property, driving while intoxicated, injuries/accidents, sexually transmitted diseases and financial indebtedness. The RRP is a very efficient way of providing commanders data and information about high-risk behavioral problems in their units. Once high-risk issues are identified, commanders can call upon installation resources for support in reducing or preventing future high-risk behaviors. The program focuses on effective use of installation resources and coordinated efforts between commanders and installation agencies to implement effective interventions. Because the RRP integrates information and installation human services program efforts, it is an important support system for the Army Well-Being Initiative. RRP has also been incorporated into the DCS program. Because of the program's popularity and success with senior mission commanders, the RRP will become a formal and mandatory program in FY06. When fully implemented, the RRP will directly contribute to force stabilization by enhancing Soldier personal readiness and reducing first-term attrition.

Equal Opportunity (EO) Program

The EO Program formulates, directs and sustains a comprehensive effort to maximize human potential and to ensure fair treatment for all persons based solely on merit, fitness and capability in support of readiness. Commanders are responsible for sustaining a positive command climate that fosters unit cohesion. The goals of the EO Program are to:

- Provide EO for military personnel and family members, both on and off the installation within the limits of the laws of localities, states and host nations
- Create and sustain effective units by eliminating discriminatory behaviors or practices that undermine teamwork, mutual respect, loyalty and shared sacrifice of the men and women of America's Army
- Provide equal opportunity and fair treatment for military personnel, family members and DACs without regard to race, color, gender, religion or national origin and provide an environment free from unlawful discrimination and offensive behavior

Sexual Assault Prevention and Response Program

On 6 February 2004, the Acting Secretary of the Army directed the establishment of an Army task force to conduct a detailed review of the effectiveness of Army policies and procedures on reporting and addressing allegations of sexual assault. The task force was charged with reviewing processes to ensure a climate in which victims feel free to report allegations and leaders understand their responsibilities to support victims and investigate allegations. The task force was charged with making recommendations for change to current policies, programs and procedures

for addressing sexual assault allegations and victim support. As a result, the task force developed the Sexual Assault Prevention and Response Program, which reinforces the Army's commitment to eliminate incidents of sexual assault through a comprehensive policy that centers on awareness, education and prevention, victim advocacy and data collection. The Army has established a web site (www.sexualassault.army.mil) as a tool for leaders to help prevent and respond to incidents of sexual assault.

Army policy promotes sensitive care for victims of sexual assault and accountability for those who commit these crimes. Specifically, the goals of the Sexual Assault Prevention and Response Program are to:

- Create a climate that will prevent sexual assault in the Army
- Create a climate that will encourage victims to report incidents of sexual assault without fear of reprisal
- Establish sexual assault training and awareness programs to educate Soldiers and leaders
- Ensure the sensitive, confidential and comprehensive treatment of victims
- Ensure leaders understand their roles and responsibilities in response to sexual assaults and thoroughly investigate allegations of sexual assault

MANPRINT Program

Tomorrow's battlefield will be a complex environment, filled with new equipment and technologies. Real battlefield effectiveness results from a good match between the people who operate and maintain the equipment and the equipment itself. At the heart of the Army Vision are well-trained Soldiers, using state-



of-the-art equipment to win wars. The Army's program to ensure that Soldier issues are key considerations in system design, development and acquisition is called MANPRINT. The objectives of MANPRINT are to (1) optimize both the quantity and quality of the personnel needed for systems; (2) design systems that are easily usable by Soldiers, safe to operate, cause no unnecessary health problems, and maximize Soldier survivability; and (3) ensure acceptable trade-offs are made among performance, design and Soldier issues.

MANPRINT's Strategic Value to the Army

The MANPRINT process employs task and functional analyses and modeling to best determine personnel efficiency in operating and maintaining systems. The analyses, matched with the relevant personnel attributes and well-planned training, yield lower manpower requirements per system. Because early design decisions are so critical to life-cycle costs, MANPRINT must be employed early in a system's developmental cycle to maximize out-year operational and support savings. The continual improvement in MANPRINT techniques and tools relies on adequate funding of additional Soldier-oriented research and development. As we continue to push the envelope for battlefield dominance through technology advancements and innovations, we must ensure that the Soldier remains the centerpiece of our formation.

U.S. Army Research Institute for the Behavioral and Social Sciences (ARI)

ARI's mission is to maximize individual and unit performance and readiness to meet Army operational requirements through research in the behavioral and social sciences. Our program in personnel, training and leader development research covers the total life cycle of the Soldier and provides the foundation to select, assign, promote and retain the highest quality Soldiers; train and develop them to keep pace with technology and changing mission demands; and quickly develop leaders with the conceptual and interpersonal skills to lead the Future Force.

Future ARI research in personnel will improve officer accession and retention policy, improve enlisted attrition management, recommend future Soldier selection and classification systems, and support future unit focused stabilization. In training, ARI's future research will develop prototype small unit leader and team training methods; new methods for simulation-based collective training; joint training and feedback methods; and proto-

type game-engine-based training. Future ARI leader development research will support development and assessment of the skills needed by Future Force leaders for effective performance in field settings; demonstrate computer-based coaching for developing leader skills; and develop methods for growing leaders who can meet anticipated 2020 requirements.

Conclusion

To remain relevant and ready, today and tomorrow, the Army must continue to recruit and retain the right Soldiers and civilians, improve management systems that support a lifetime of service, and ensure the human dimension is considered in the development of new systems and equipment. Of utmost importance, the Army must stay focused on supporting commanders in the field with personnel systems and information that enhance warfighting capability and agility. Ultimately, the success of transformation will be realized only if the personnel community remains alert to the current and future needs of our most valuable asset—People.

ANNEX F: FACILITIES

Introduction

As the Army continues to transform, a myriad of actions and initiatives are being simultaneously implemented that must be synchronized and coordinated in order to effectively transform while at war. The Installations as our Flagships Focus Area enhances Army installations' ability to project power and support families. The Army will implement fundamental changes in force structure, spiral technology insertion and business processes. Our installations support a joint and expeditionary force where Soldiers train, mobilize and deploy to fight and win. These forces are sustained through reach operations, reducing the in-theater footprint as well as providing unprecedented battle command and situational awareness at home station. Soldiers and their families who live on and off installations deserve the same quality of life as is afforded the society they are pledged to defend.

The role of installations has changed significantly. No longer merely deployment platforms and support for the well-being of Soldiers and their families, installations now provide continuous support from the foxhole to home station throughout deployment. As the Army transcends to an unprecedented level of force structure change and technology integration, installations will undergo a corresponding change in business processes, roles and responsibilities. The integrated, collective capabilities and capacities of installations in any given geographic region will far exceed what any one installation can provide. The Army is simultaneously enhancing its joint

support role to interagency (domestic) and multinational (international) cooperation.

There are three essential tasks that must be accomplished for installations to meet their challenging, evolving role: development of strategies to posture installations as deployment platforms with robust, technology-rich reach capabilities; adjusting installation support and resourcing priorities to meet the needs of the Army at war and transforming; and maintaining support for the well-being of all Soldiers and their families. Subtasks for these three essential tasks have been developed, and the Office of the Assistant Chief of Staff for Installation Management (OACSIM) and its executing agents, the Installation Management Agency (IMA) and the U.S. Army Corps of Engineers (USACE), continue to refine strategies and objectives leading to realignment of resources or divestiture of marginal tasks. The Army will continue to develop new strategies while adjusting existing programs to ensure we properly identify and validate our installation requirements.

Installation Strategy and Objective

While all installations serve a vital role in maintaining and sustaining an expeditionary Army ready to meet the Army's mission across a broad spectrum of contingencies, not all locations are geographically or economically suited to meeting the broad range of capabilities, characteristics or capacities on a single post. Each installation has its own unique strength fostered either by individual capability or capacity for a given operational or mission function, or its proximity to key or

critical support “nodes.” The Army intends to harness this individuality or diversity. To eliminate “have” and “have not” scenarios, the Army is simultaneously and aggressively implementing facility modernization through several Army initiatives such as the Focused Facility Strategy and Residential Communities Initiative. Additionally, integrating installation services with the surrounding community develops an even stronger environment of civil-military community relations. The objective is to develop and transform into a system of installation capabilities and resources to support a CONUS-based projection of forces. There are three major thrust areas to achieve these goals.

- OACSIM is enabling technologies in partnership with industry and USACE in order to improve our military construction response times, facilities standardization and criteria development, and employing adaptive, modular facility designs. Multipurpose, adaptive facility and facility complex designs will provide support to consolidated functions such as maintenance, training and logistics in a single complex. Single-purpose facility designs will be provided by exception as the Army migrates to the Future Force. Installations will no longer adopt the one-size-fits-all posture.

CONUS-based installations will continue to support a mix of Current and Future Forces for the next few decades and will serve as an integral component of the extended battlespace from home station to foxhole. As more installations convert to totally Future Force unit stations, excess space can be reallocated to reduce some of the facility maintenance and repair backlog within a geographic region. At some installations, the combined use of regional assets and recovery of excess

facilities will also reduce cramped conditions, thereby improving both the operational posture of the units stationed there and the quality of life or well-being of the Army family on post.

- OACSIM and IMA are developing policies, strategies and priorities to implement aggressive transformation of installations as well as meeting the global war on terrorism support requirements. Through the implementation of the Army’s Installation Information Infrastructure Architecture (I3A), installations will provide seamless connectivity to Army and joint force commanders across the full spectrum of operations. A common information architecture will link all installations to commanders in the field as well as joint, interagency and multinational (JIM) support infrastructures worldwide. Installations will enable mission accomplishment by simultaneously providing the means of reducing the in-theater footprint of deployed forces, and enhancing the commander’s tool kit by providing the vital information hubs, deployment platforms and sustainment bases.

Training centers will continue to provide unique capabilities that are utilized on a rotational basis to conduct integrated live-virtual-constructive (LVC) training for combined arms and collective train-



ing tasks. These training centers will be simultaneously and seamlessly linked to home station installations or institutional centers to expand their training capabilities. Digitally enabled training facilities and equipment will provide the flexibility for Soldiers, units and command staffs to train from geographically separate locations in a synthetic environment, thereby optimizing training opportunities and increasing readiness.

- Through detailed and regular coordination with Army Staff proponents and Major Army Commands, OACSIM is synchronizing decisions and implementation milestones based on the efforts of the previous two axes. Having the right installation infrastructure and facility mix at the right place and time is vital to continued Army readiness and modernization. Moreover, the Army requires modern, web-enabled capabilities to manage, as well as provide support across the doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) domains.

Hence, the Army installation transformation environment will require changes in business processes, policies and installation management structure, as well as the following attributes and characteristics. The primary thrust for this axis is the development of policies and programmatic strategies that support validation and verification of facility and infrastructure requirements to meet Army stationing and fielding time lines across all DOTMLPF domains.

Living and Working Environments

To achieve a balance between the increased dependence upon installations serving a vital role for reach operations and serving as infor-

mation hubs for access to knowledge centers and centers of excellence demands higher levels of security and protection. The threat environment (e.g., terrorism, biohazards, computer hacking) facing Soldiers, their families, Department of the Army civilians (DACs), and contractors on an installation will require full-dimensional protection.



Beyond standardizing access control points for all installations that aggressively meets the realities of today's anti-terrorism and force protection needs, installations may incorporate advanced technologies such as biometrics; smart cards; entity tracking; networked sensors; and chemical, biological, radiological, nuclear and high-yield explosives (CBRNE), and weapons or munitions detection capabilities. Security procedures and capabilities will be linked to local, state and federal law enforcement activities, enhancing responsiveness and increasing survivability. The use of emerging and advanced technology such as sensors and detectors can enhance the security posture of the installation without having to resort to an entrenchment or "walled-city" environment.

When services are integrated within the surrounding community, security considerations may extend beyond the installation boundary to the extent feasible. At the same time, the security posture of installations is less intrusive as the aesthetics remain "pleasing to

the eye” while they belie the actual level of protection of the installation.

Installations and communities will become increasingly integrated and mutually supportive. Regional, city and installation master planners will work together to leverage common infrastructure and services to create mutual benefits and decrease operating costs. Surrounding communities may provide medical, dependent education, or recreational or emergency services to mitigate lack of on-post capabilities. Civilian and military communities may augment each other in mutual support agreements, thereby maximizing resource investments within a community or region.

Environmental strategies, land use and stewardship activities continue to be more fully integrated into business processes and base support services both on post and in coordination with state and local governments. The fundamental objective will be to achieve common or mutually supportive goals. Land-use and environmental considerations become less divisive as perspectives and appreciation for the benefits of close community ties outweigh the occasional disadvantages of close proximity to military installations.

Realigning Installation Management

On 1 October 2003, the IMA was established as a field operating agency of the OACSIM. IMA provides a corporate-focused structure for efficient and effective installation management worldwide. At the garrison level, IMA is implementing creative management programs to sustain quality installations and maintain the well-being of the entire Army family. They are sustaining the requisite environmental quality to fully support realistic training. Operational commanders are freed from the time-consuming tasks of running an installation and the delicate balancing of

operational resources and training with infrastructure and facilities sustainment.

For Soldiers and their families, installations are configured to provide the same quality of life as is afforded the society they are pledged to defend. The past practice of accepting risk in infrastructure to maintain warfighting readiness has resulted in more than a decade of chronic underfunding. More than 50 percent of our facilities are in such poor condition that commanders have rated them as adversely affecting mission and training requirements.

The Army has made significant progress to rectifying shortfalls and inadequacies as strategies are employed that identify redundancies, inefficiencies and priorities for investment as well as marginal areas where divestiture increases resource availability for shortfall mitigation. These successes are largely the result of consolidating installation management under a central organization such as the IMA and serve as models for Department of Defense application. Over the past few years, the administration and Congress have helped the Army correct this situation with innovative business practices.

Conclusion

Army installations are essential to maintaining the premier, expeditionary Army. The key missions for installations continues to be the provision of effective facilities that meet training, mobilizing and deploying the force, sustaining and reconstituting the force, and taking care of our families.

What has changed is the criticality and duration of support provided to deployed forces and the level of technology integration adopted. This has led to a greater desire for multipurpose, adaptive facilities that maximize

the economical and functional benefits of standardization.

Much progress has been made, but we have a long way to go to upgrade our installations to support our missions, Soldiers and their families. Adjustments to existing programs

have been made and strategies continue to be refined.

Installations exist to support the warfighters and their continued well-being. The Army remains dedicated to meeting the challenge of providing quality, mission-ready installations.

ACRONYMS

A2C2	Army airspace command and control
A2C2S	Army Airborne Command and Control System
A2SF	Active Army Strength Forecaster
AAFARS	Advanced Aviation Forward Area Refueling System
AAMDC	Army Air and Missile Defense Command
AAO	Army Acquisition Objective
AAR	after action review
ABCS	Army Battle Command System
ABT	air-breathing threats
AC	Active Component
ACAP	Army Career and Alumni Program
ACAT	Acquisition Category
ACE	Analysis and Control Element
ACIP	Aircraft Component Improvement Program
ACIS	Aircrew Integrated Systems
ACS	Aerial Common Sensor
ACSAP	Army Center for Substance Abuse Programs
ACTD	Advanced Concept Technology Demonstration
ACTF	Army Constructive Training Federation
ACUS MP	Area Common User System Modernization Plan (currently known as the Joint Network Transport Capability–Spiral)
ADA	air defense artillery
ADAM	Air Defense and Airspace Management
ADOCS	Automated Deep Operations Coordination System
ADRS	Army National Guard Division Redesign Study
ADSAM	air-directed surface-to-air missile
ADSI	Air Defense System Integrator
AFATDS	Advanced Field Artillery Tactical Data System
AFCS	automatic flight control system
AGSE	Aviation Ground Support Equipment
AIM	Abrams Integrated Management
AIS	automated information system
AKM	Army Knowledge Management
AKO	Army Knowledge Online
ALO	level of organization
ALS	Analytical Laboratory Suite
AMC	Army Materiel Command
AMD	air and missile defense
AMDCCS	Air and Missile Defense Command and Control System

AMDPCS	Air and Missile Defense Planning and Control System
AMDWS	Air and Missile Defense Workstation
AMEDD	Army Medical Department
AMI	Adaptive Medical Increments
AMMPS	Advanced Medium Mobile Power Sources
AMPS	Aviation Mission Planning Systems
AMRAAM	Advanced Medium-Range Air-to-Air Missiles
ANCOC	Advanced NCO Course
ANT	Army Node Transloader
AO	area of operations
AOA	Analysis of Alternatives
AOR	area of responsibility
AOS	Army One Source
AP	anti-personnel
APKWS	Advanced Precision Kill Weapon System
APL-A	Antipersonnel Land Mine Alternative
APOD	aerial port of debarkation
APS	Automated Pump Stations
APU	auxiliary power unit
AR	Army Regulation
ARFOR	Army forces
ARH	Armed Reconnaissance Helicopter
ARI	Army Research Institute for Behavioral and Social Sciences
ARNG	Army National Guard
AROC	Army Requirements Oversight Committee
ARSOA	Army special operations aviation
ARSOF	Army Special Operations Forces
ARSTRAT	Army Strategic Forces
ARV-A	Armored Robotic Vehicle-Assault
ASA M&RA	Assistant Secretary of the Army (Manpower and Reserve Affairs)
ASA(ALT)	Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology)
ASAS	All Source Analysis System
ASAS-L	All Source Analysis System-Light
ASBS	Army Selection Board System
ASE	Aircraft Survivability Equipment
ASIP	Advanced System Improvement Program
ASMD	Air Space and Missile Defense
ASPG	Army Strategic Planning Guidance
AT	antitank
ATACMS	Army Tactical Missile System
ATACMS-P	ATACMS-Penetrator
ATCCS	Army Tactical Command and Control System
AT-CDEP	Army Transformation Concept Development and Experimentation Campaign Plan

ATD	Advanced Technology Demonstration
ATGM	Antitank Guided Missile Vehicle
ATIA	Army Training Information Architecture
ATLAS	All Terrain Lifter Army System
ATLDP-C	Army Training and Leader Development Panel Civilian
ATLDP-O	Army Training and Leader Development Officer Panel
ATNAVICS	Air Traffic Navigation, Integration, and Coordination System
ATR	automatic target recognition
ATS	Army Targetry Systems
ATS/ATC	Air Traffic Services/Air Traffic Control
AVCATT–A	Aviation Combined Arms Tactical Trainer–Aviation
AW	Air Warrior
AWIS	Aircraft Wireless Intercom System
AWOL	absent without leave
AWS	Airspace Workstation
AWSS	Aerial Weapons Scoring System
BA	budget activities; battlespace awareness
BASIC	body armor set individual countermeasure
BAT	Biometric Automated Tool
BAWS	Biological Aerosol Warning Sensor
BAX	Battle Area Complex
BBS	Battalion Battle Simulation
BC	Battle Command
BCIS	Battlefield Combat Identification System
BCP	battery command post
BCS3	Battle Command Sustainment Support System (previously the Combat Service Support Control System)
BCT	Brigade Combat Team
BCTC	Battle Command Training Center
BCTP	Battle Command Training Program
BDA	battle damage assessment
BEMT	Basic Electronics Maintenance Trainer
BES	Battle Effects Simulator
BFN	Bridge-to-the-Future Network
BFV	Bradley Fighting Vehicle
BFT	Blue Force Tracking
BIDS	Biological Integrated Detection System
BLOS	beyond-line-of-sight
BMC	Battle Master Control
BMC4I	battle management command, control, communication, computers and intelligence
BMDS	Ballistic Missile Defense System
BMMP	Business Management Moderation Program
BNCOC	Basic NCO Course
BOLC	Basic Officer Leader Course

BSC	brigade support company
BW	biological warfare
C&C	guidance and control
C/MHE	Container/Material Handling Equipment
C2	command and control
C2M	Command and Control Module
C3I	command, control, communications and intelligence
C4	command, control, communications and computers
C4I2	command, control, communications, computers, information and intelligence
C4ISR	command, control, communications, computers, intelligence, surveillance and reconnaissance
CA	civil affairs
CAISI	Combat Service Support Automated Information System Interface
CALFEX	combined arms live-fire exercise
CAN	capabilities needs analysis
CAP	Combined Aggregate Program
CAPT	civil affairs planning team
CAT	civil affairs teams
CATS	Combined Arms Training Strategies
CATT	Combined Arms Tactical Trainer
CB	chemical/biological
CBCSE	Common Battle Command Sim Equipment
CBMS	Chemical Biological Mass Spectrometer
CBPS	Chemical Biological Protection Shelter
CBRN	chemical, biological, radiological and nuclear
CBRNE	chemical, biological, radiological, nuclear, and high-yield explosives
CBT	Common Bridge Transporter
CCD	Charge-coupled detector (video)
CCF	Course Correcting Fuze
CCTT	Close Combat Tactical Trainer
CD	cavalry division
CDA	Commander Digital Assistant
CDD	Capability Development Document
CDI	classification discrimination and identification
CE	chemical energy
CeaVa	continuous early validation
CES	Civilian Education System
CFF	Central Funding and Fielding
CFFT	Call for Fire Trainer
CFLCC	Coalition Forces Land Component Command
CGS	Common Ground Station
CGSC	Command and General Staff College
CHIMS	Counterintelligence/Human Intelligence Information Management System
CHS	combat health support

CI	counterintelligence
CID	combat identification
CIDS	Capabilities Integration and Development System
CIE	Clothing and Individual Equipment
CITV	commander's independent thermal viewer
CIV	commander's independent viewer
CJCS	Chairman, Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff instruction
CK	Containerized Kitchen
CLAWS	Complementary Low-Altitude Weapon System
CLU	container launch unit
CM	cruise missile
CMD	cruise missile defense
CMOC	civil-military operations center
CMTC	Combat Maneuver Training Center
CMWS	Common Missile Warning System
COE	contemporary operating environment
COMINT	communication intelligence
CONPLAN	concept plan
CONUS	continental United States
COP	common operational picture
COS	Continuum of Service
COTS	commercial off-the-shelf
CP	command post
CP DEPMEDS	Collectively Protected Deployable Medical System
CPAC	Civilian Personnel Advisory Centers
CPE	Collective Protection Equipment
CPG	Contingency Planning Guidance
CPMS	Civilian Personnel Management Service
CPMS XXI	Civilian Personnel Management System XXI
CPOC	Civilian Personnel Operations Centers
CRD	Capstone Requirements Document
CREW	Counter-RCIED Electronic Warfare
CROP	container roll-in/roll-out platform
CRXXI	Classroom XXI
CS	combat support
CSA	Chief of Staff, U.S. Army
CSC	Convention for Safe Containers
CSH	combat support hospital
CSS	combat service support
CSSCS	Combat Service Support Control System (currently the Battle Command Sustainment Support System)
CSS-SATCOM	Combat Service Support Satellite Communications
CSSTSS	Combat Service Support Training Simulation System
CTC	combined training center

CTIA	Common Training Instrumentation Architecture
CV	Commander Vehicle
CVC	combat vehicle crewmen
CVE	common virtual environment
DA	Department of the Army
DAART	Digital After Action Review Tool
DAB	Defense Acquisition Board
DAC	Department of the Army civilians
DAE	Defense Acquisition Executive
DAGR	Defense Advanced GPS Receiver
DAP	Decon Apparatuses: Portable
DARP	Deployable Range Package
DARPA	Defense Advanced Research Projects Agency
DBST	Digital Battlestaff Sustainment Trainer
DCGS-A	Distributed Common Ground System-Army
DCIIS	Defense Counterintelligence Information System
DCS	Deployment Cycle Support
DERF	Defense Emergency Response Fund
DIMHRS	Defense Integrated Military Human Resources System
DIS	Distributed Interactive Simulation
DITSCAP	DOD Information Technology Security Certification and Accreditation Process
DL	distributed learning
DLMP	Doctrine Literature Master Plan
DM	designated marksman
DOCEX	document exploitation
DOD	Department of Defense
DOL	Department of Labor
DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel, and facilities
DPICM	Dual Purpose Improved Conventional Munitions
DS3	Disabled Soldier Support System
DSB	Dry Support Bridge
DSN	Defense Switched Network
DSP	Defense Support Program
DTAS	Deployed Theater Accountability Software
DTES	Division-TES
DTF	Digital Training Facility
DTI	Doctrine Taxonomy Initiative
DTLD	doctrine, training, and leader development
DTSS	Digital Topographic Support System
DTTP	Distributed Training Technology Project
DVA	Department of Veteran Affairs
EA	executive agent
E-BCT	Evaluation Brigade Combat Team

EDM	Electronic Data Manager
eHRS	Enterprise Human Resource System
ELINT	electronic intelligence
eMILPO	Electronic Military Personnel Office
ENVG	Enhanced Night Vision Goggles
EO	electro-optic; Equal Opportunity
EOD	explosive ordnance detachment
EOR	engage-on-remote
EPIAFS	Enhanced Portable Inductive Artillery Fuze Setter
EPLRS	Enhanced Position Location Reporting System
ER/MP	extended range/multipurpose
ERD	Employment Retrieval System
ERFS II	Extended Range Fuel System II
ES	Enlisted Specialty
eSB	engineer support battalion
EST	Engagement Skills Trainer
ESV	Engineer Squad Vehicle
ETRAC	Enhanced Target Range Acquisition Classification
ETS	expiration term of service
EW	electronic warfare
FA	functional area
FAA	Federal Aviation Administration
FAAD C2	Forward Area Air Defense Command and Control
FAAD C2I	Forward Area Air Defense Command, Control, and Intelligence
FARRP	forward area rearm and refueling point
FBCB2	Force XXI Battle Command, Brigade and Below
FCA	future cargo aircraft
FCB	Functional Capability Board
FCR	Fire Control Radar
FCS	Future Combat Systems
FDA	Food and Drug Administration
FDU	force design updates
FFW	Future Force Warrior
FISMA	Federal Information Security Management Act
FL	focused logistics
FLIR	forward looking infrared
FM	field manual
FMI	field manual interim
FMS	foreign military sales
FMTV	Family of Medium Tactical Vehicles
FOC	full operational capability
FOM	family of munitions
FoS	family of systems
FRP	full-rate production
FRS	Forward Repair System

FS	fire support
FS3	Fire Support Sensor System
FSC	forward support company
FSCM	fire support coordinating measures
FSV	Fire Support Vehicle
FTI	Fixed Tactical Internet
FUE	first unit equipped
FXXI	Force Twenty One
FY	fiscal year
FYDP	Future Years Defense Plan
GATM	Global Air Traffic Management
GB	Grenadier BRAT
GBI	Ground-Based Interceptors
GCCS	Global Command and Control System
GCCS-A	Global Command and Control System-Army
GCN	GMD Communications Network
GCS	Ground Control Stations
GCSS	Global Combat Support System
GEO	geosynchronous earth orbit
GFC	GMD fire control
GIG	Global Information Grid
GII	Global Information Infostructure
GMD	Ground-Based Midcourse Defense
GMLRS	Guided MLRS
GOCO	government-owned, contractor-operated
GOGO	government-owned, government-operated
GOTS	government off-the-shelf
GPM	gallons per minute
GPR	ground penetrating radar
GPS	Global Positioning System
GSS	Ground Soldier System
GSTAMIDS	Ground Standoff Minefield Detection System
HEAB	high-explosive airburst
HEMTT	Heavy Expanded Mobility Tactical Truck
HEO	High Earth Orbit
HET	Heavy Equipment Transporter
HF	Hellfire
HICON	higher headquarters
HIMARS	High Mobility Artillery Rocket System
HITS	Home Station Instrumentation Training System
HLVTOL	Heavy Lift Vertical Takeoff and Landing
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HMVD	helmet-mounted visual display
HPT	high-payoff targets
HQDA	Headquarters, Department of the Army

HR	human resources
HSTAMIDS	Handheld Standoff Mine Detection System
HTI	Horizontal Technology Integration
HUMINT	human intelligence
I/R	internment/resettlement
I2	image-intensification
I3A	Installation Information Infrastructure Architecture
IAMD	Integrated Air and Missile Defense
IBA	interceptor body armor
IBAS	improved Bradley acquisition sight
ICAM	Improved Chemical Agent Monitor
ICBM	intercontinental ballistic missile
ICD	Initial Capabilities Document
ICV	Infantry Carrier Vehicle
ID	infantry division
IDM	Improved Data Modem
IED	improvised explosive device
IEWTPT	Intelligence Electronic Warfare Tactical Proficiency Trainer
IFC	integrated fire control
IFF	identification, friend or foe
IFR	instrument flight rule
I-GNAT	Improved GNAT
I-HITS	initial-Home Station Instrumentation Training System
IIR	imaging infrared
ILE	Intermediate Level Education
IMA	Installation Management Agency
IMETS	Integrated Meteorological System
IMINT	imagery intelligence
IMS	international military students
I-MTS	Integrated-Military Operations on Urbanized Terrain Training System
IMU	Inertial Measurement Unit
IO	information operations
IOC	initial operational capability
IOT&E	initial operational test and evaluation
IP	Internet Protocol
IPDS	Petroleum Distribution System
IPP	Installation Protection Program
IR	infrared
IRB	Improved Ribbon Bridge
IRR	Individual Ready Reserve
IS	Instrumentation System
ISO	International Standardization Organization
ISR	intelligence, surveillance and reconnaissance
ISYSCON	Integrated Systems Control
ITSB	integrated theater signal battalion

JAGCE	Joint Air-Ground Center of Excellence
JBAIDS	Joint Biological Agent Identification and Diagnostics System
JBPDS	Joint Biological Point Detector System
JC2	Joint C2
JCAD	Joint Chemical Agent Detector
JCATS	Joint Conflict and Tactical Simulation
JCIDS	Joint Capabilities Integration and Development System
JDLM	Joint Deployment Logistics Model
JFC	Joint Functional Concept
JFLCC	joint force land component commander
JHSV	Joint High Speed Vessel (formerly Theater Support Vessel)
JIC	Joint Integrating Concepts
JIEDD TF	Joint IED Defeat Task Force
JIM	joint, interagency and multinational
JLENS	Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System
JLOTS	Joint Logistics Over-the-Shore
JMPS	Joint Mission Planning System
JNTC	Joint National Training Capability
JNN	Joint Network Node (JNN), (formerly known as the Area Common User System Modernization Plan)
JOA	Joint Operational Area
JOC	Joint Operating Concept
JOpsC	Joint Operations Concepts
JP	Joint Publication
JPADS	Joint Precision Airdrop Systems
JPALS	Joint Precision Approach Landing System
JPME	Joint Professional Military Education
JPS	Joint Portal Shield Detector System
JROC	Joint Requirements Oversight Council
JRTC	Joint Readiness Training Center
JSCP	Joint Strategic Capabilities Plan
JSGPM	Joint Service General Purpose Mask
JSLNBCRS	Joint Service Lightweight NBC Recon System
JSLSCAD	Joint Service Lightweight Standoff Chemical Agent Detector
JSM-PDS	Joint Service Man-Portable Decontamination System
JSPDS	Joint Service Personnel/Skin Decontamination System
JSSD	Joint Service Sensitive Equipment Decontamination
JSSD-JPID	Joint Service Sensitive Equipment Decontamination Joint Platform Interior Decontamination System
JSTARS	Joint Surveillance Target Attack Radar System
JSTDS	Joint Service Transportable Decontamination System
JSTDS-LS	Large-Scale System
JSTDS-SS	Small-Scale System
JTAGS	Joint Tactical Ground Station
JTAMD	joint theater AMD

JTF	joint task force
JTRS	Joint Tactical Radio System
JWARN	Joint Warning and Reporting Network
JWCA	Joint Warfighting Capability Assessment
KE	kinetic energy
KLO	key leader option
km	kilometer
kW	kilowatt
LACMS	land attack cruise missile
LAM	loitering attack munitions
LAN	local area network
LDM	laser designator module
LEO	Low Earth Orbit
LHS	Load Handling System
LLDR	Lightweight Laser Designator Range Finder
LMFF	Load Handling System Modular Fuel Farm
LMG	light machine gun
LMS	lightweight multipurpose shelter
LOS	line-of-sight
LPI	low probability of intercept
LPD	low probability of detection
LRAS3	Long-Range Advanced Scout Surveillance System
LRIP	low-rate initial production
LT2	Live Training Transformation
LT2-FTS	Live Training Transformation-Family of Training Systems
LTT	light tactical trailer
LUH	Light Utility Helicopter
LVC	live-virtual-constructive
LVC-IA	Live-Virtual-Constructive-Integrated Architecture
LW	Land Warrior
M&S	modeling and simulation
M3P	Multi-Mission Mobile Processor
MACOM	major command
MACS	Modular Artillery Charge System
MANPRINT	Manpower and Personnel Integration
MASINT	measurement and signature intelligence
MATCH	Modular Armored Tactical Combat House
MBCOTM	Mounted Battle Command on the Move
MBF	My Board File
MC	Mortar Carrier
MC4	Medical Communications for Combat Casualty Care
MCG	microclimate cooling garment
MCS	Maneuver Control System; Microclimate cooling system
MCU	multicomponent unit; munitions control unit
MDA	Missile Defense Agency

ME	maneuver enhancement; maneuver enhanced
MEADS	Medium Extended Air Defense System
MEDEVAC	medical evacuation
MEI	major end item
MEL	military education level
MEP	mission equipment package
METL	Mission Essential Task List
METT-TC	mission, enemy, terrain and weather, time, troops available and civilian
MEV	Medical Evacuation Vehicle
MFCR	Multifunction Fire Control Radars
MGS	Mobile Gun System
MGV	Manned Ground Vehicle
MHC	Material Handling Crane
MI	military intelligence
MIHDS	Modular Integrated Helmet Display System
MILES	Multiple Integrated Laser Engagement System
MILSATCOM	military satellite communications
MILSTD	Military Standard
MKT	Mobile Kitchen Trailer
MLC	military load classification
MLRS	Multiple Launch Rocket System
MMC	Mission Management Center
MMW	millimeter wave
MOFA	multiple option fuze, artillery
MOPP	mission-oriented protective posture
MOS	military occupational specialty
MOTS	Mobile Tower System
MOUT	military operations in urban terrain
MOUT IS	MOUT Instrumentation System
MP	military police; manning priority
MPCV	Mine Protected Clearance Vehicle
MRBC	multi-role bridge company
MRE	mission rehearsal exercise
MRI	Medical Reengineering Initiative
MRM	Mid-Range Munition
MRX	mission readiness exercise
MSD	Maintenance Support Device
MSE	Missile Segment Enhancement; Mobile Subscriber Equipment
MSFA	Modular Support Forces Analysis
MSG	master sergeant
MSO	mission staging operation; military service obligation
MSTF	Mission Support Training Facility
M-TADS/PNVS	Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor
MTBDR	mean time between depot replacement
MTI	moving target indicator

MTRS	Man-Transportable Robotic System
MTS	Movement Tracking System
MTV	medium tactical vehicle
MTX	mini-transmitter
MULE	Multifunctional Utility/Logistics and Equipment
MW	Mounted Warrior
MWS	Modular Weapon System
MWSS	MW Soldier Systems
NATO	North Atlantic Treaty Organization
NBC	nuclear, biological and chemical
NBCRV	Nuclear, Biological and Chemical Reconnaissance Vehicle
NCO	noncommissioned officer
NCOES	NCO Education System
NDAA	National Defense Authorization Act
NDI	nondevelopmental item
NDS	National Defense Strategy
NETOPS	network operations
NFI	Noninvasive Filler Identification
NGATS	New Generation Army Targetry Systems
NGO	nongovernmental organizations
NLCS	Nonlethal Capabilities Set
NLOS	non-line-of-sight
NLOS-C	Non-Line-of-Sight Cannon
NLOS-LS	Non-Line-of-Sight Launcher System
NMS	National Military Strategy
NOSC	Network Operations and Security Center
NSA	National Security Agency
NSPS	National Security Personnel System
NSS	National Security Strategy
NTA	nontraditional agent
NTC	National Training Center
NVG	night vision goggles
O&O	organizational and operational
O&S	operating and support
OACSIM	Office of the Assistant Chief of Staff for Installation Management
OBP	Object-Based Publishing
OCA	offensive counter air
OCONUS	outside continental United States
OCSW	Objective Crew Served Weapon
ODS	Operation Desert Storm
OEF	Operation Enduring Freedom
OES	Officer Education System
OICW	Objective Individual Combat Weapon
OIF	Operation Iraqi Freedom
OIPT	Overarching Integrated Process Team

OIS	Objective Instrumentation System
OMS/MP	Operational Mode Summary/Mission Profile
OneSAF	One Semi-Automated Forces
OneTESS	One Tactical Engagement Simulation System
OPFOR	opposing force
OPM	Office of Personnel Management
OPTEMPO	operational tempo
OSD	Office of the Secretary of Defense
OSTS	Opposing Forces Surrogate Training Systems
OSTV	OPFOR Surrogate Tank Vehicle
OSV	OPFOR Surrogate Vehicle
OSWV	OPFOR Surrogate Combat Wheeled Vehicle
OT&E	operational test and evaluation
P3I	preplanned product improvement
PAC-3	Patriot Advanced Capability-3
PAM	precision attack munitions
PaYS	Partnership for Youth Success
PB06	FY06 Presidential Budget
PCP	program change packages
PCS	permanent change of station
PDHCMG	Post-Deployment Health Care Management Guidelines
PEO	Program Executive Officer
PEO EIS	Program Executive Office Enterprise Information Systems
PERSTEMPO	Personnel Tempo
PGMM	Precision Guided Mortar Munition
PLDC	Primary Leader Development Course
PLGR	Precision Lightweight GPS Receiver
PLM +	Product Life-cycle Management Plus
PLS	Palletized Load System
PM	program management
PME	Professional Military Education
POI	program of instruction
POL	petroleum, oil and lubricants
PoP	proof of principle
POS/NAV	position/navigation
POTF	psychological operations task force
PQT	production qualification testing
PSDR	Personnel Services Delivery Redesign
PSYOP	psychological operations
PT	Personnel Transformation
PTIR	Precision Track Illumination Radar
PVT	positioning, velocity and timing
QDR	Quadrennial Defense Review
QR	quick reaction
QRC	quick-reaction capability

R&R	Rest and Recuperation
R5	redeployment, return-to-duty, R&R, reception and replacement
RAID	Rapid Aerostat Initial Deployment
RC	Reserve Component
RCIED	remote-controlled improvised explosive device
RCU	remote control unit
RDA	research, development, and acquisition
RDEC	research development and engineering center
RDTE	research, development, test and evaluation
REBS	Rapidly Emplaced Bridge System
REF	Rapid Equipping Force
REFRAD	release from active duty
RF	radar frequency
RFI	Radar Frequency Interferometer; Rapid Fielding Initiative
RFID	radio frequency identification
RIFTS	Rapidly Installed Fluid Transfer System
RIT	Reintegration Training
ROE	rules of engagement
RPG	rocket-propelled grenade
RRP	Risk Reduction Program
RSTA	reconnaissance, surveillance and target acquisition
RTCH	Rough Terrain Container Handler
RTFL	Rough Terrain Forklift
RV	Reconnaissance Vehicle
RWS	Remote Weapons Station
S&T	science and technology
SaaS	Soldier as a System
SAASM	Selective Availability Anti-Spoofing Module
SAF	semi-automated forces
SAL	semi-active laser
SALE	Single Army Logistics Enterprise
SAR	synthetic aperture radar
SASO	stability and support operations
SATCOM	Satellite Communications
SATS	Standard Automotive Tool Set
SAW	squad automatic weapon; Senior Army Workforce
SAWE	Simulated Area Weapons Effects
SBA	Small Business Administration
SBCT	Stryker Brigade Combat Team
SBE	stay-behind equipment
SBIRS	Space-Based Infrared System
SBP	Survivor Benefit Plan
SC	special compact
S-CATT	Soldier Combined Arms Tactical Trainer
SDD	System Development and Demonstration

SDHSS	Shallow Draft High-Speed Ship
SDS	Sorbent Decontamination System
SE Core	Synthetic Environment Core
SECDEF	Secretary of Defense
SEMA	special electronic mission aircraft
SEP	Soldier Enhancement Program
SEWD	Space Electronic Warfare Detachment
SF	special forces
SFC	sergeant first class
SIAP	Single Integrated Air Picture
SICPS	Standardized Integrated Command Post Systems
SIGINT	signals intelligence
SIIRCM	Suite of Integrated Infrared Countermeasures
SIMNET-T	Simulation Network Training
SINCGARS	Single Channel Ground and Airborne Radio System
SIPRNET	SECRET Internet Protocol Router Network
SIRFC	Suite of Integrated Radio Frequency Countermeasures
SJFHQ	Standing Joint Force Headquarters
SKA	skills, knowledge and attributes
SLAM	selectable lightweight attack munitions
SLAMRAAM	Surface-Launched Advanced Medium-Range Air-to-Air Missile
SLEP	Service Life Extension Program
SMART	Simulation and Modeling for Acquisition, Requirements and Training
SMART-T	Secure Mobile Anti-Jam Reliable Tactical Terminal
SMC	Sergeant Major Course
SMDC	Space and Missile Defense Command
SMS	Sweep Monitoring System
SMSR	Strength Management System Redesign
SMTI	selective moving target indicator
SOAED	special operations aviation expeditionary detachment
SOAR(A)	Specials Operations Aviation Regiment (Army)
SOF	Special Operations Forces
SoS	system of systems
SOSA	Systems of Systems Architecture
SPOD	seaport of debarkation
SPORT	Soldier Portable On-System Repair Tool
SR	surveillance radar
SRC	standard requirements code
SRP	Sustainable Range Program
SSE	Space Support Element
SSET	Space Support Element Toolkit
SSF	system-of-systems framework
SSH	Secret System High
SSTOL	Super Short Takeoff and Landing
STE	Synthetic Training Environment

STRAC	Standards in Training Commission
SWB	software blocking
T&E	test and evaluation
T2	Training Transformation
TAA	Total Army Analysis
TACSIM	Tactical Simulation
TADLP	The Army Distributed Learning Program
TADSS	training aids, devices, simulators and simulations
TAF	Training Analysis and Feedback
TAIS	Tactical Airspace Integration System
TARP	Training Augmentation Range Packages
TBM	tactical ballistic missile
TBMCS	theater battle management system
TC-AIMS II	Transportation Coordinators' Automated Information for Movement System II
TDDT	Training and Doctrine Development Tool
TE	Training Environment
TENCAP	Tactical Exploitation of National Capabilities
TEP	Tactical Electric Power
TES	Tactical Exploitation System
THAAD	Terminal High Altitude Area Defense
THP	take home package
TI	Tactical Internet
TIC	toxic industrial chemical
TIM	toxic industrial material
TIN	tactical installation and networking
TLM	target locator module
TLO	terminal learning objective
TMDE	test, measurement, and diagnostics equipment
TOC	tactical operations centers
TOW	tube launched, optically tracked, wire guided
TPFDD	time-phased force deployment data
TPG	Transformation Planning Guidance
TQG	TEP Tactical Quiet Generator
TRADOC	Training and Doctrine Command
TRI-TAC	TRI-Services Tactical Communications
TSIU	Tactical Simulation Interface Units
TSS	Training Support System
TSV	Theater Support Vessel (currently Joint High Speed Vessel)
TTP	tactics, techniques and procedures
TUAV	Tactical Unmanned Aerial Vehicle
TWPS	Tactical Water Purification System
TWS	Thermal Weapon Sights
UA	Unit of Action
UAV	unmanned aerial vehicle

UAVS	unmanned aerial vehicle systems
UCS	Unified Command Suite
UE	Unit of Employment
UEWR	Upgraded Early Warning Radars
UGV	unmanned ground vehicle
UHF	ultra-high frequency
USACE	U.S. Army Corps of Engineers
USAF	United States Air Force
USAJFKSWCS	U.S. Army John F. Kennedy Special Warfare Center and School
USAR	U.S. Army Reserve
USAREUR	United States Army Europe
USARSO	United States Army South
USASOC	United States Army, Special Operations Command
USCENTCOM	United States Central Command
USD	Under Secretary of Defense, Personnel and Readiness
USF	Unit Set Fielding
USFK	United States Forces, Korea
USMC	United States Marine Corps
USN	United States Navy
USPACOM	United States Pacific Command
USSOCOM	United States Special Operations Command
VAA	value-added analysis
VCSA	Vice Chief of Staff, Army
VMET	Verification of Military Experience and Training
VOIP	voice-over IP
VSAT	very small aperture terminals
VSO	veterans service organization
VV&A	verification, validation and accreditation
WA2R2	warfighting alternative analysis requirements and resources
WAN	wide area network
WARSIM	Warfighters Simulation
WBLO	Well-Being Liaison Office
WIM	WARSIM Intelligence Model
WIN-T	Warfighter Information Network-Tactical
WMD	weapons of mass destruction
WMD-CST	Weapons of Mass Destruction Civil Support Team
WOES	Warrant Officer Education System
XBR	X-Band Radars
XML	Extensible Markup Language

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with Joint and Expeditionary Capabilities*



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